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ARTISTS IN STRING

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STRING FIGURES: THEIR REGIONAL DISTRIBUTION AND SOCIAL SIGNIFICANCE

BY

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WITH A FOREWORD BY

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WITH 82 DIAGRAMS

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FOREWORD

WHY study string figures ? The answer to any such question is given in this fascinating book. The making of string figures is one of the oldest of the arts, the most universal of games, the most puzzling (in its geographical distribution) of all the queer things that primitive people do. Not that there are any really primitive people left, except each generation of the new-born ; and it is one of the more important observations which this book records that, along with figures which recur almost unaltered in remote regions, each group of peoples has its own store of devices, intimately related to regional peculiarities in their mode of life. These, at all events, are not primitive, still less primeval. They came into being, as all forms of skill and artistry do, by happy conjunction of means, and end, and creative use of occasion. For the *means*—a bit of string, or its equivalent, knotted into continuity, for whatever other purpose who shall say ? For the *end*—somebody's vision of a meaning, a chance likeness to something else, as the loops of the skein, or mere tangle, slide and unravel, or overlap : ' fish-spears ! ' look you, or ' a butterfly ' caught in a momentary glimpse, and abolished at a jerk of the thumb. But what has made the whole experience worth while is the deft finger-play and string-sense which not only contrived to do that amazing trick again, but did it, so to say, ' by numbers ', so that others could do it too, as they might pick up a tune, chanted slowly, according to a wild bird's call, or some one's cry of joy or distress.

Such *re-creation* of things momentarily seen, or otherwise experienced as vividly real, lies, it would seem, at the heart of artistic achievement. The thrill of origination, of

encountering ' the butterfly ' or ' the two coyotes ' for the first time, and unexpectedly, happens but to few. And of those few, how far fewer ever met either of them again, for all their ravellings. Yet somebody did, and enriched his world with a new string figure, for us to re-create as we can.

And here come in, as all good ' cat's-cradlers ' know, the scholarship and finesse of performance, so hard to acquire, for most of us ; so precious and heartening, once gotten and exercised. For the more elementary the means, the more fully does the end achieved show forth the personality of the doer : ' Manners makyth Man.'

Perhaps it is this essential stark humanity in the making of string figures that has made them so potent a ' mixer ' of persons otherwise aloof in upbringing and estate. What happens—as Mrs. Rishbeth will describe it—among Papuans or Navaho has happened, hardly less surely, in a railway carriage, barbarized and unhandy as fellow-travellers often are in this range of ' accomplishment '. It has been said of folk-dancers, and by them, that ' you cannot quarrel badly with a fellow you have danced with ' ; and of ' cat's cradles ' it is probably the same, and for the same reason : ' One thing at a time, and that done well ' makes business business-like, and sport sportsman-like ; and when we speak of the ' distractions ' of our own hurried lives we mean approximately this, that we can so seldom ' go all out ' even at those objects which we judge most worth while.

Here string figures, and the study of them, have a grace and a virtue which times and circumstances do not change. Primitive they may not be, as we know them now, though the most widespread of them may go back far into the childhood of mankind ; but vividly human, and a challenge to the common humanity in each of us, they cannot cease to be. And that is why this study of them is welcome, and will be welcomed by all good souls.

JOHN L. MYRES

PREFACE

IF an apology is needed for the appearance of a new book on string figures it may perhaps be sought in the treatment and point of view adopted in the following pages. Hitherto string figures seem to have been regarded either from the technical point of view—a study by no means lacking in interest—or simply as pleasurable pastimes. In this book an attempt has been made to show their connexion with the environment, physical and social, of the people who practise them. The field is naturally limited to those people from whom collections of string figures have been made and properly recorded. Of these I have selected five, though in some cases the task of analysis and deduction would have been easier and the results more satisfactory had there been a larger number of figures upon which to generalize.

Moreover, the sub-title may appear pretentious, for on the sociological side it is difficult as yet to formulate definite conclusions. As time goes on, however, and more material is obtained, it should be possible to form a much clearer opinion of the value of string figures from ethnological and geographical points of view, and various points here raised may then be confirmed or refuted.

I should like to take this opportunity of expressing my thanks to those who have helped in the production of this book. Firstly to my father, Dr. A. C. Haddon, who not only made it possible for me to see many parts of the world and to collect string figures from the natives themselves, but also for his generous assistance in the preparation of this work.

To the other collectors of string figures I should like to

express my thanks : to Mr. D. Jenness for his fine collection of Eskimo figures and for his great courtesy in replying to my many inquiries, and to Mr. C. L. T. Griffith for the use of his Gold Coast figures. The late Dr. G. B. Gordon of Philadelphia has also kindly allowed me to make use of his Alaskan material.

I am further greatly indebted for permission to make use of certain published material : to the Royal Anthropological Institute for the figures from the Gold Coast ; to the Royal Society of Victoria for the Cape York figures and illustrations ; and to Messrs. Scribner's Sons, New York, and Messrs. Longmans, Green and Company, London, for the Navaho Indian figures.

Finally, and above all, I thank my husband for his unfailing sympathy with my aims and his constant help in the writing of this book.

K. R.

SOUTHAMPTON
January 1930

ARTISTS IN STRING

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CHAPTER I

INTRODUCTORY

STRING figures—or cat's cradles, as they are often called—are now comparatively well known. Apart from anthropologists there is a growing, if select, band over whom they cast their spell. As an amusement, indeed, they are unique, for almost any one can learn to make them, and no more apparatus is needed than a piece of string. Hundreds of figures have now been recorded, and there is little fear of coming to an end of them.

But cat's cradles are much more than an amusement. Rightly viewed, they have a scientific value which the ethnologist has recognized for some years. Furthermore, they should appeal also to students of the human geography, to which they make a contribution by no means negligible.

In the present work an attempt has been made to regard them from this aspect, and to illustrate by means of them some of the intimate details in the life of the peoples in a few chosen localities, and to show how these details harmonize with the general environment.

We may perhaps be permitted to recall the following sentences, written in 1911 [1]: 'The ethnological value of these figures has not yet been worked out. Indeed, it is difficult to do so at present owing to insufficient data.' The data are still insufficient, but they have been greatly

[1] 19, p. xv. *Vide* p. 137 *infra*.

increased since that time and there is a real need now for something in the nature of a survey. In spite of gaps in our knowledge and the consequently provisional nature of our deductions, it seems that the time has come to collect and analyse the known facts and to attempt to place the study on a more scientific basis.

The method best adapted for this purpose is the geographical. It is only when we study the figures first against their geographical and then against their human backgrounds that their meaning becomes apparent.

This being so, it seems necessary to have at least a general preliminary idea of what data are available; and perhaps the best way of obtaining this information is to survey rapidly the areas of the world from which the data have been drawn.[1]

The first string figure recorded was from North America. In this continent extensive and valuable collections have been made from the Arctic north, and particularly from Alaska. The Behring Sea area, including the islands and Asiatic coast-lands, may also be included here. Farther south the Indians of the British Columbian and central Rocky Mountains and of the great plains are fairly well represented.

For South America the only materials so far published come from the Caribbean area—the Guianas. But some photographs and names have recently been collected from the Chaca Indians of Paraguay, and it is hoped that further details will be forthcoming.

The African string figures are derived from areas widely scattered over the continent. In East Africa, Tanganyika mainly, but Uganda and Nyassaland (Zomba) also are represented, and the figures from Rhodesia and Portuguese East Africa should in all probability be included here as well. Some figures are known from the Congo; while

[1] The importance of the geographical factor in connexion with cat's cradles is seen clearly in the detailed history of their discovery and scientific study given in Mrs. Jayne's valuable book, 22, p. 11.

West Africa has supplied comparatively large collections (Gold Coast and Slave Coast). For the north and south portions of the continent the evidence is scanty. One Zulu figure has been recorded, while, at the other extreme, there is some evidence that string figures are made among the Kabyles and Arabs of Algeria.[1]

In Australia a large number of figures has been obtained from North Queensland, particularly from Cape York Peninsula, and a few from South Australia (Lower Murray area).

Oceania has proved a happy hunting-ground for the string figure enthusiast. Collections have been made in New Zealand, and also in Hawaii, Papua, and the neighbouring islands, the islands of Torres Straits, New Caledonia, the New Hebrides, Palau, and the Carolines; besides, several other islands, or island groups, have yielded abundant materials. The Philippines might also be mentioned here, though perhaps they are better grouped with Eastern Asia.

Very different is the situation as regards Europe and Asia. These continents are so poor in string figures that for the present purposes they may be taken together. The cat's cradle for two players—the form commonly known in England under that name—is found in the Eastern Asiatic fringe lands and Pacific Islands (Japan, Korea, China, Philippines, Borneo, Hawaii), and was probably introduced to Europe through the tea trade. This series, together with a few other figures and tricks found in Europe and India, represent all that is known from these continents, though an interesting collection has been made in the Andaman Islands.

From this brief review of the geographical distribution of the string figures so far recorded, two main considerations emerge—their wide distribution and the peculiar gaps in it.

[1] The figures recorded, however, appear to be introductions, and it is not known whether the practice is indigenous.

Their wide distribution is the more striking if we take into account their very probable existence in many areas where so far they have not been recorded. It is hard to believe, for instance, in view of their present distribution, that no further figures remain to be discovered in Africa. So, too, in South America: the large number collected from the Guianas make it reasonably certain that they are widespread in that continent also. The history of the actual discovery of string figures in certain areas affords evidence in the same direction. Where travellers know nothing of string figures—or despise them as the pastimes of women and children—they are hardly likely to find them. Thus figures have actually been found in places where Europeans, long resident in the area, have averred that none existed, and numerous other cases could be cited of their recent discovery where Europeans have been in occupation for a considerable time. Lastly, the writer herself has seen numerous string figures made by natives which there was no time to record, an experience doubtless shared by many other people.

We may take it then as reasonably certain that our data are very far from being complete. But, this being so, and with all due allowance for what is unknown, the gaps in the distribution are none the less striking.

These gaps are clearly of two kinds. There are what we may call regional blank spaces, and there are omissions, or absences, of a more local and particular kind.

The largest and most striking blank space is Eurasia. Here, apart from a very few instances, and those not very interesting, string figures, as we have seen, are mainly absent. Nor does it seem likely that many remain to be discovered. North America, South America (probably), Africa, Australia, and Oceania, on the other hand, yield evidence of the more or less widespread practice of string figures in present or not very distant times. Stated ethnologically this means that whereas redskins, Eskimo, tropical browns and blacks have these figures, the white,

yellow (Mongoloid) and Asiatic brown people have few or none.

But besides this provisional generalization there are more particular omissions—absence in certain places of certain figures or classes of figures. Here particular care is needed in making deductions, for it is here that the weakness of negative evidence makes itself most felt.

The absence of certain classes of figures in certain definite areas is without doubt significant—sometimes for obvious reasons, as when we find no figures representing cultivated plants among the Eskimo [1]—sometimes for reasons less obvious but equally natural, as, for instance, the lack of any figure representing a dwelling or any part of it amongst the natives of North Queensland.[2]

In other cases absences may be due merely to the paucity of our information. It is only in the case of a few collections (e.g. Jenness's collection from Arctic North America, Roth's drawings from North Queensland) that we can be reasonably certain that nearly the whole range of figures is recorded.

But besides these there are certain absences—even where the record is fairly full—which are puzzling and for which no reason can at present be assigned. To mention but one instance of this: there is the absence of figures representing big game (particularly lions and elephants) from the figures collected in West Africa. In such cases we must be content for the present with no explanation at all or with surmise. Nevertheless, where such omissions are not purely fortuitous, they may well conceal interesting evidence as to native customs and ways of thought. This, at any rate, is the impression created by some such cases, and further investigation is greatly to be desired.

The method adopted in this book, therefore, will be to select five sets of figures derived from peoples associated each with a definite geographical area. The two North American areas, fairly remote from one another, differ

[1] *Vide* p. 18 *infra*. [2] *Vide* p. 99 *infra*.

widely in their physical characteristics. In the Australasian examples, on the other hand, the areas are close together and, partly for this reason, offer an interesting study in comparison and contrast. Half-way between the above two groups and widely separated from either is the Gold Coast (Ashanti) district, with a totally different geographical character.

Within each area, however, the method of treatment will follow similar lines. A brief sketch of the physical environment will show the more important factors to which the people have to adapt their mode of life. The main features of that life being sketched we shall be able to view our string figures against a real background, and so understand not only them but the conditions which they faithfully and often delicately reflect. Thus we shall be able more accurately to assess their value as scientific evidence, and possibly even to base certain general conclusions upon them.

In the study of string figures certain questions naturally arise. Many of them indeed have actually been asked of the writer when she was showing the figures. Such questions as: What are string figures? How and why did they originate and why are they found in so many parts of the world? Are they mere child's play, 'make-believe' —string fantasies with names attached? Or are they a form of art, a conscious imitation of real objects executed in the medium of string? If the latter, can an evolution be traced, a development from the simple to the complex? Or, again, what is their ultimate fate? If their origin is shrouded in mystery, is the cause of their disappearance also obscure?

But though we may put ourselves questions we must not expect definite answers to all of them. In fact, the evidence at our disposal in some cases may serve merely to define the problem.

There is, however, one further question even more difficult—a question which seems, in a way, to sum up all

the others and to go to the very root of the matter. What is the significance of the same form recurring in several, often widely separated, parts of the globe ? Is it always a pure accident of manipulation, or does it sometimes denote cultural connexion ? In other words, to what extent are string figures valid evidence for movements and changes in the habits of peoples.

Such considerations, however, must be deferred to the conclusion, where, by attempting comparative methods, we may hope to offer at least some tentative suggestions.

But whatever may or may not emerge from our study of string figures there is one aspect of them of which we can speak at once. It is notoriously difficult for a European to make contact with primitive peoples. And by contact we mean not mere acquaintance and observation, but the more subtle contact of mind and sympathy.

Apart from the obvious difficulties of language, there is the instinctive shyness, or even hostility, of the native toward the stranger. And when that stranger is a white man with a sense of superiority and an ignorance of native customs, the fear and suspicion seem justified. But even when fear is absent, the barriers that guard a people's intimate and traditional thoughts do not fall to casual assault.

All this is obvious enough. A method of obviating these difficulties, of establishing confidence and a basis of understanding, is not so easy to discern. It is just here that string figures can make a contribution.

Let the man, or woman, come quietly among the natives, as I have done, and sitting on the ground pull out a piece of string. Let him proceed to make string figures—whether figures familiar to those natives or not, it matters little. The effect is magical. Instead of hanging back or hiding in hut and bush, the natives cluster eagerly round. Shyness is forgotten : each vies with each in showing new figures. If these figures can be learned and written down so much the better. But in any case the right atmosphere

has been gained: friendly relationships have been established and information will be forthcoming much more readily.

Nor is it only the ethnologists who have found string figures useful. A Father of the Sacred Heart Mission on Yule Island, Papua, spoke to me most enthusiastically of the help they had been to him in his work with the natives of the interior; and this experience might be paralleled from elsewhere. The casual traveller will find an added interest if he collects string figures upon his journeys, and even the trader might find them not beneath his notice.

There are few memories more delightful than those of chance encounters with parties of natives—the squatting beside the track, the exchange of courtesies in string, the mutual delight in recognizing old favourites, the excitement and applause that greet new ones, the final regretful leave-taking—and all without one word being spoken on either side that was intelligible to the other.

CHAPTER II

THE ALASKAN ESKIMO

WE live in an age of disillusionment. Our cherished beliefs are destroyed. We reconstruct them as best we may in the light of new discoveries and fresh knowledge.

In the realm of geographical ideas no more destructive blow has been dealt than that which has of late demolished our old-time notions of the lands of the Eskimo.

A land of ice and dreary barrenness, an Arctic land, where polar night spreads its pall for six months of the year and luckless mortals crouch in shivering misery —to those who have read the works of Vilhjalmur Stefansson it must indeed appear that a shaft of light has pierced this gloom and dispelled something of its fog and chill.

Hundreds of miles within the Arctic circle are grassy prairies, treeless indeed, but bright with summer flowers. The Arctic winter is long, but not so cold as in many parts much farther south. The idea of eternal snow is a myth. The cold, dry air affords little precipitation. Less snow falls, for example, than in northern Virginia,[1] and it is never very deep except in drifts. Furthermore it soon melts in the intense heat of summer and the ground is left as bare as in our own lands.

The wealth of flowers in summer is astonishing. At least seven hundred varieties of flowering plants are known.[2] These, like the Alpine flowers, make the most of the fleeting days before winter returns. Where the soil is very thin,

[1] 40, p. 646. [2] 40, p. 647.

mosses and lichens prevail, and the lichens can grow even on bare rock.

A natural corollary of the flowering prairies is the abundance of summer insects, and in the train of these a host of birds. The herbage too attracts great herds of grazing animals—caribou and musk ox—and preying upon them bears and wolves. Nor must we forget the rabbits and innumerable swarms of lemmings, devoured by companies of rapacious birds. The list of animals is by no means insignificant. Only by a stretch of imagination can Arctic lands be called barren.

By no means all these animals migrate in winter. Stefansson asserts [1] that the musk ox never leaves the locality where it was born, and although the caribou [2] roam from place to place, and even from island to island over the winter ice, they do not necessarily go south. Hence neither is there need for the bears, wolves, and foxes to leave the far north. Indeed, these 'lifeless' regions have been considered capable of supporting indefinitely from their own resources a company of white men 'living on the country'.

The same is true of the sea. The seasonal migrations southwards of whales and walruses created an impression that seals and fish also were in the habit of migrating annually. But this is a mistake. Apart from the two animals mentioned, the inhabitants of the ocean do not leave their summer quarters.

Another illusion dissipated is that of intense and enduring cold. A summer there always is, although it may only last a few months. How glad would we sometimes be, in our temperate clime, for even that assured amount. Well within the Arctic circle shade temperatures of 90° F. are by no means uncommon. Nor does night bring cooling—for there is no night. The sun circles monotonously in the

[1] **41**, p. 18.

[2] 'Caribou' is here used to designate the wild animals as distinct from the domesticated 'reindeer'.

sky, breeding the innumerable hosts of flies and mosquitoes —curse of the Arctic summer. For human beings there is no fixed time of rest. People sleep when they are tired, but there are always children awake and playing.

Naturally the winters are cold, but not so cold that suitable clothing and houses, such as are those of the Eskimo, cannot mitigate and make them endurable. At Herschel Island Observatory, the most northerly in Canada, about two hundred miles within the Arctic circle, the absolute minimum temperature recorded over a period of twenty years is −54° F. At Havre in Northern Montana, a thousand miles farther south, the absolute minimum is −68° F.

And so examples of popular misconceptions concerning the Arctic might be multiplied, but one more will suffice. Imagination used to picture the Eskimo weather-bound in gloomy huts eking out a miserable existence until the sun once more appeared. In point of fact the Eskimo look forward to the winter with no small pleasure of anticipation, much as we look forward to our far less extended season of Christmas. It is the time of holiday, of social activities, of feasts and fun and dancing.[1] Work—or most of it—is necessarily suspended. Nor is the darkness absolute. There are a few hours' twilight every day and the appearance of the *aurora borealis* is very common.

* * * * *

So much for the general conditions in which the life of the Eskimo is spent. We may now turn to the region with which we are more directly concerned, the homeland of the Alaskan Eskimo.

In Alaska 'the backbone' of America, the Rocky Mountains, is divided. A southern spine, the Alaskan Range, runs out to sea as the Alaskan Peninsula and dies away in the broken land bridge of the Aleutian Islands.

[1] 42, p. 130.

The northern section, the Endicott Range, terminates more abruptly in Point Hope and Cape Lisburne on the north-east side of Behring Straits. Between these two ranges is the great depression drained by the somewhat complex systems of the Yukon and Kuskokwim rivers. Along the north flank of the Endicott Range stretches east and west a plateau shelf forming a rolling upland tundra, whilst between this and the Arctic Ocean lies a low coastal plain. It is this coastal plain that provides, in this region, most of the flowering prairie land referred to above, while the tundra plateau behind has a few trees, mostly willows. This upland tundra was once good game country, but it has been so hunted over that caribou are now much less plentiful.

To this northern foreland the western part of Alaska offers a considerable contrast. In the west are great stretches of swampy tundra, such as those which lie about the lower regions of the Yukon and Kuskokwim. Here, indeed, is a dreary picture. The whole area along the coast and some distance inland is low-lying, waterlogged and treeless, save for narrow, raised strips along the river, built up with mud deposited by the streams. These give foothold to willows, alders, small poplars, and rank grass. Along this fringe also the native villages cling. Villages are also found on the occasional elevations—dry islands in the tundra morass. For the rest, round about and on every side stretches barren and treeless swamp, with its rank growth of moss, or muskeg, many feet thick. Tracks across this tundra exist, but they are extraordinarily difficult to discover. For any one who does not know the country thoroughly, this region is practically impenetrable except during the winter months. Then travel is possible almost anywhere by means of dog sled.

But desolate as the wet tundra is, it has beauty and even charm.[1] The blending of sombre reds and yellows, of quiet browns and greys in the autumn moss, the wave-like

[1] 12, p. 153.

undulations of the tundra floor matching the great canopy of cloud-hung skies, the silence, the purity, the loneliness—all these form the spirit of the landscape, the *genius loci* that must be felt, however obscurely, by the people who live under its spell.

Such is the country inhabited by the Alaskan Eskimo—coastal tundra, swampy in the west, dry in the north. The south-eastern coastal strip, with its adjacent islands, is occupied by Thlingit Indians. Inland from the swampy tundra—about one hundred and fifty miles up the Kuskokwim River—the landscape changes. The ground is higher and well timbered and has stretches of open, rolling country. In these parts, and farther inland, are found the Athapascan Indians, who occupy the interior.

It naturally occurs to one to wonder—it has in fact caused a good deal of surprise—why the Eskimo inhabit what so clearly seem the less desirable parts of the land. The natural answer is that they are refugees: they have been driven there. But the Eskimo are a strong and somewhat aggressive people. The Indians treat them with respect, not to say fear. It is difficult to think of them as having been pushed out upon the fringe of the habitable world. We may perhaps conclude with Stefansson that they inhabit this land because they like it, because it is the land of their choice.[1]

However this may be, the Eskimo are supposed to be very early immigrants from Asia.[2] They are long-headed (dolichocephalic) people with broad, flat faces, are short of stature, and have straight black hair. In spite of their somewhat unprepossessing appearance they are exceedingly cheerful and friendly folk and most hospitable to travellers.

When we remember the lengthy, enforced leisure that is at their disposal in winter it is not surprising that the Eskimo have developed the art of string figures to a very high degree. It is hardly an exaggeration to say that so far as is known at present they are the most practised and

[1] 41, p. 25. [2] 17, p. 126.

skilled exponents of this art. Certainly it would be hard to find more striking or realistic figures than, say, the Fox and the Whale [1] or the Seagull.[2] A close study of their figures brings to light not a little that is interesting, instructive, and even surprising, and upon a few of these traits we may now briefly dwell.

And first we should notice the remarkable scarcity of figures representing inanimate nature. The reason is not far to seek. Living for the most part on a featureless coastal plain or monotonous rolling tundra, physiographic details, such as strike the imagination and evoke artistic imitation, are few. The exception tests the rule, and we have an exception so interesting and so charming that we may be pardoned for lingering a little upon it.

There is the figure of a man who, paddling his kayak, catches sight of a range of distant mountains.[3] When Peter the Great was emperor, the Russians were making great journeys of exploration throughout Siberia and north-eastern Asia. Rumours had reached them that beyond the eastern sea lay another land. Whether this land was connected with Asia in the north was a matter upon which uncertainty reigned. In 1732, at the command of Peter the Great, a Russian naval officer, Gvozdev, was sent out in the *St. Gabriel* to learn something of this 'large country.' [4] Sailing from Kamchatka north and then east, he reached the Diomede Islands, whence, again sailing east, he sighted land. This he took to be another island, though it was, in point of fact, the land of his quest, Alaska. But the weather becoming foul and his men uneasy, he decided to return forthwith. On the homeward way, however, they encountered 'a Chukchee in a leather boat that had room for but one man', and from him they learned that 'there were Chukchee in the large country where there were forests, streams, and animals.' Here, then, we have the first description known

[1] **19**, p. 64. [2] **19**, p. 57. [3] *Vide* p. 23 *infra*.
[4] **11**, Vol. I, p. 24.

to us of Alaska. Now, nearly two hundred years later, we can reconstruct this scene in string : the Chukchee paddling his boat ' that had room for but one man ' and seeing afar off, high above the sea, the mountains of Alaska. Sometimes, too, fogs, so prevalent in Behring Straits, obscure the mountains. Then, instead of a clear zigzag line, the line of the distant crests, we get a confused mass of strings.

Returning to the question of topographical detail, the absence of it among the Eskimo string figures could hardly be more strikingly illustrated than by contrast with a situation occurring a comparatively short distance away—on the south-east coast of the peninsula of Alaska. Here, in that wonderful region of mountain and fiord, during a short half-hour stay in a little salmon-canning station, my sister and I learned from a Thlingit Indian a string figure which is a beautiful epitome of the physical geography of that region.[1] Although not an Eskimo figure, it has been included in our selection for the sake of the contrast referred to, and also because the first stage in its construction occurs as a finished figure among the Eskimo farther north.[2]

Not only are what one may call topographical string figures scanty in number—so far only three or four have been described—but there is a complete absence of the type, so common elsewhere, which represents thunder-clouds and lightning. Again the reason is not far to seek. Thunderstorms are exceedingly rare in the Arctic. Jenness reports that in the three years which he spent there he remembers but one single flash of lightning and not a single thunderstorm. The contrast between these conditions and those of tropical Queensland,[3] for instance, is as marked in string representation as it is in physical nature.

More remarkable is the absence of figures representing sun, moon,[4] and stars. The natural inference is that the Eskimo give little heed to these objects. And yet, when

[1] *Vide* p. 26 *infra*. [2] **13**, p. 92. [3] *Vide* p. 95 *infra*.
[4] Except one figure, **23**, CXXIX and part of LXIV.

we remember the Navaho figures,[1] and still more the sky-lore of the Arab and ancient Greek—navigators, the one of the rolling steppe, the other of rock-set seas—we can hardly fail to be surprised at the omission here. The tundra is vast, uncharted, expressionless, and, in the swampy parts at any rate, treacherous. Travel across it freely is possible chiefly in winter—in the dark, that is, or in twilight. If the celestial lights should prove useful to mankind anywhere we should expect them to do so here. Again the explanation is simple. The Navaho, the Arab, the Greek, inhabit some of the most cloudless regions of the earth. The coast-lands, and particularly the western coastal portion of Alaska, are amongst the cloudiest. Fogs, clouds, and mist shroud the heavens so frequently that even in broad sunlight the natives—no doubt from force of habit—steer principally by the direction of the wind and by the lie of the wind-drifted snow.

Passing now to positive aspects, the first and most forcible impression we receive is that of the large number of Eskimo figures which represent animals. About fifty per cent of all the figures so far collected and described depict animals. The reason, as we might expect, is again obvious. Hunters, both by choice and of necessity, the Eskimo owe their livelihood first and last to animals. Besides food, they provide him with clothing, fuel—this means both cooking and lighting—and waterproof covering for himself and his boats. It would be hard to find a race more dependent upon animals. The Eskimo make no attempt to cultivate the soil and live almost without exception on a meat and fish diet. It is hardly surprising, therefore, that we find representations in string again and again of the caribou—half a dozen figures, as befits his importance. The seal, walrus and whale, the bear, wolf and fox, besides smaller fur-bearing animals such as the rabbit and the ermine, all come in for their share of attention. Birds, too, it is pleasant to find, are figured in string

[1] *Vide* p. 45 *infra.*

in abundance : the graceful sea-gull, several duck, some ptarmigan, and a raven being amongst those that deserve special notice. Even the butterfly [1] occurs, sure sign that the Arctic summer can sustain so frail a creation.

Sometimes the figures convey a charming touch of nature. The figure representing the Caribou in the Willows,[2] for instance, where the performer says, 'The caribou, it is said, when it became hot, stayed in the willows, but when it grew cold it went away.' Here we see the caribou taking shelter from the hot Arctic sun amongst the willow clumps so characteristic of the upland tundra, but with the cooler weather he seeks the open country again where he can scratch away the snow for his meals of grass and lichen.

Another characteristic figure is the fish-net [3]—a common enough object surely, and one that might be made in any part of the world. But where else in the world could a fish-net be torn to pieces by two polar bears, which are seen walking away afterwards ?

There is no very good string figure of a house. This is perhaps because the houses are difficult to represent, being partially underground and covered with earth or snow for the sake of warmth. Easier to portray is the rack or platform [4] which stands on legs outside the hut, and the purpose of which is to store food out of reach of prowling animals. Perhaps the best figure of a house is one which shows a dwelling with a sloping roof.[5] This, however, soon breaks, is mended and breaks again, whereupon the two inhabitants, rather naturally, run away.

This figure, it is interesting to note, was learned from a Chukchee from north-east Siberia. As may have been gathered from our previous remarks concerning the immigration of the Eskimo into Alaska, and also from the story of the voyage of the *St. Gabriel*, there is a good deal of intercourse between these people and the Alaskan

[1] **23**, CIX. [2] *Vide* p. 28 *infra*. [3] *Vide* p. 30 *infra*.
[4] *Vide* p. 32 *infra*. [5] *Vide* p. 33 *infra*.

Eskimo. Some of their string figures may therefore quite appropriately be included in this section, and indeed the figure of the man paddling his kayak and glimpsing distant mountains is a Chukchee figure. The kayak in this figure is seen in profile. There is another figure of this handy little craft seen from above [1] and showing the hole in which the paddler sits, the effect being very similar to that of our 'Rob Roy' canoes. The Eskimo wear waterproof shirts which fasten tightly round the waist and wrists and also round the rim of the hole in the kayak. By this means no water can penetrate, and a good boatman can right himself even in a fairly rough sea.

After animals, it is natural that figures portraying more immediate human interests should be plentiful, and, when one reflects, there is little else to portray but animals, human beings, and the objects which symbolize the relations between them. The Eskimo, we have said, are hunters, and the figures of bow, knife, seal-net, and harpooner [2] all denote this very clearly, whereas the total absence of plant designs or of any implement of cultivation is almost a foregone conclusion where no agriculture exists.

An interesting sidelight upon seal-hunting in winter is furnished by the figure 'Seal Holes' (Fig. 7).[3] Where the sea-ice is not too thick the seal keeps open a number of holes through which it can come up to breathe. Although often masked by snow, these holes can usually be found by dogs trained for the purpose, and when once a hole is located the hunter has nothing to do but to take his post there and to await the coming of the seal. In order that he may have warning of its approach the Eskimo places a float in the hole, and since the seal has the choice of many holes it may be hours or it may be days before this indicator moves. At the first movement the hunter plunges his harpoon straight through the hole, and if he is skilful he may secure the seal.

[1] **19**, p. 60. [2] **23**, XL, LXXXIII, LXXXVII, CVIII. [3] *Vide* p. 35 *infra*.

Dogs are employed for hunting in this and in other ways, but their principal use is for purposes of transport. They are—or rather, were [1]—the only beasts of burden of the Alaskan Eskimo. In winter they draw the sleds, in summer they carry packs. Hence we are not surprised to find an Alaskan string figure which represents a dog drawing a sled.[2] In this connexion, however, an interesting contrast occurs, one which reveals, as few things could do better, the intimate relationship between the string figures and the environment which they reflect. The Siberian Eskimo have domesticated the reindeer. In their corresponding figure the sled is drawn by a deer.[3]

One more detail regarding the string figures is worthy of mention. This is the frequent representation of parts of the body: Eyes and Mouth,[4] Arms and Legs,[5] Breastbone and Ribs,[6] and so on. The reason for this peculiarity is not very obvious. Apart from the Navaho Indian figure 'Breastbone and Ribs'[7] there appear to be few other representations of purely 'anatomical' import in all the known range of string figures—and this, though the form of the unclothed body is familiar to many peoples who practise the art. It is noteworthy, however, that whereas the Eskimo out of doors are exceedingly muffled up, inside their much overheated dwellings they strip to the waist. Can it be that this contrast of condition draws attention to the shape of the body, a shape taken for granted by other peoples who are always more or less unclothed (e.g. those in the tropics), or who, like the American Indian, are habitually clothed? This suggestion, it is true, hardly accounts for the facts, but it is the only sort of explanation we can offer.

Here, too, may be mentioned a point of interest which emerges from a comparative study of string figures from

[1] Domesticated reindeer have, of recent years, been imported from Siberia.

[2] **23**, VIII. [3] **23**, XIII. [4] *Vide* p. 36 *infra*.

[5] **19**, p. 58. [6] **22**, p. 308. [7] *Vide* p. 63 *infra*.

different parts of the world. In most countries—Africa, Australia, Oceania—the toes are frequently used as an aid in manipulating the string, but so far as we know they are never so used by the Eskimo or the American Indian. A moment's reflection will suggest the reason. The Eskimo's skin boots and the American Indian's moccasins preclude the use of the big toe as a supplementary finger.

Like certain other peoples [1] the Eskimo have a definite period of the year in which the playing of 'cat's cradles' is in season, and in Alaska there used to be a 'taboo' against playing them except in winter after the sun had disappeared. Now the Eskimo are 'cat cradle' addicts, and one wonders whether this prohibition is directed against waste of time that might be spent in more useful or even necessary activities. If so, we would have here a measure of social legislation—like restrictions upon betting, or the closing of public-houses at certain times—and also a recognition of the sheer and sometimes even excessive fascination of the pastime. At any rate, it is significant that it was confined to the season of leisure. However this may be, the prohibition has now ceased to be effective in Alaska and string figures are made throughout the year, although farther east, in the Coronation Gulf area, the superstition is more inclined to linger.[2]

Still farther east, the Eskimo of Hudson Bay have a different belief. Here 'cat's cradles' are played in the autumn to try and entangle the sun and so prevent it from disappearing for the winter.[3] Also, in the same district, boys are not allowed to play 'cat's cradles'. Otherwise when they grow up and go fishing their fingers will become entangled in the harpoon line. Two cases of hunters losing their fingers in this way are ascribed to their having played 'cat's cradles' when they were young.[4]

Unique, to all appearances, was the belief of the Alaskan

[1] *Vide* pp. 75, 76 *infra*.
[2] **23**, p. 181 B.
[3] **19**, p. xv.
[4] **19**, p. xv.

Eskimo in a 'Spirit of String Figures',[1] a phenomenon which opens up a vista of interesting speculations as to the social and psychological significance of the practice among these people. Many stories are told about this spirit, which revealed its presence by a peculiar sound like the crackling of dry skins, and which made string figures with its own intestines or with an invisible string. At Cape Prince of Wales there was a belief that it could be driven away if some one did 'Opening A'[2] and uttered certain words. In other parts of Alaska there was a special figure which possessed a like potency.[3] If no string were available it was sufficient to pretend to make the appropriate figure—a sort of shadow 'cat's cradling'—but unless some one of these measures was taken every one in the house would become paralysed and die.

As an illustration—for the point is not without interest—we may be permitted to quote *in extenso* the following story which was narrated to Jenness by a woman of Cape Prince of Wales :[4]

> 'On the site of Tin City (a deserted tin mine near Cape Prince of Wales) there once lived a boy who spent all his evenings in making string figures. One evening, as he was amusing himself with his favourite pastime, the spirit of cat's cradles entered the house, drew forth its own intestine, and began to make figures also. The mother of the boy snatched the string away from her son's hands, exclaiming "I told you not to be always playing that game." Sitting down on the floor opposite the spirit she made "Opening A", unmade it, made it again, again unmade it, then, with the exclamation, "I've raced you," quickly made the figure a third time, and flourished it in the intruder's face. The spirit shuffled nearer the door, and the woman shuffled after it, each striving to outdo the other in manipulating the

[1] 23, p. 181 B.
[2] *Vide* p. 155 *infra*.
[3] 23, xxiii.
[4] 23, p. 18.

string. At last the spirit vanished through the door—the woman's presence of mind had saved both her son and herself.' [1]

Jenness records other stories [2] of similar import. It is the first time that anything of the kind has been put on record and it would be a matter of no little scientific interest if further investigations in other parts of the world were to bring to light analogous practices.

[1] In this tale one is struck by the fact that speed in manipulation is evidently an important thing, and is probably striven for by those who wish to become experts in the art.

[2] 23, p. 182 B.

STRING FIGURES

1. The Kayaker and the Mountain [1] (*Chukchee*)

Position 1.[2]—With the right thumb pick up the left little finger string from the proximal ulnar side. Do not draw tight. With the left thumb pick up the right ulnar little finger string from the proximal ulnar side. Extend, and release the little fingers.

FIG. I

With the little fingers hook down the ulnar thumb strings. Pass the index fingers proximal to the oblique radial thumb strings and distal to the straight radial thumb string, turning the index fingers down and then up away from you pick up this string on their tips. Release thumbs.

Pass the thumbs into the little finger loops from the distal side and draw down the oblique ulnar little finger strings, then pass the thumbs to the ulnar side of the straight little finger string, and turning them up pick up this string on their backs and return through the little finger loops. Release little fingers.

[1] Collected by Mrs. A. E. Hodder (1909); and *vide* 23, p. 154 B.
[2] *Vide* Note on Nomenclature, pp. 153 ff. *infra*.

Pass each little finger from the proximal side into its respective central diamond, and hook down the strings which cross the thumb loops obliquely.

Pass the right thumb into the left thumb loop from the proximal side ; release the left thumb and pass it into the right thumb loops from the proximal side, thus making the thumb loops common.

Pass the thumbs from the proximal side into the index finger loops. Navaho them, and release index fingers.

Transfer the little finger loops to the index fingers (the straight string being on the radial side).

Transfer the thumb loops to the hooks of the little fingers (the straight string being on the ulnar side).

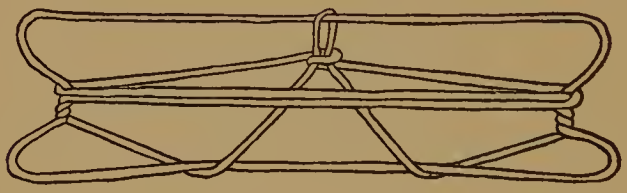

FIG. IA.—THE KAYAKER

Extend the figure, and move the index fingers to represent the man paddling his kayak.

To make the mountains : [1]

With the backs of the thumbs pick up from the proximal side the two radial strings forming the deck of the kayak ; then with the thumbs pick up from the proximal side the radial index strings. Navaho thumbs and release index fingers.

Transfer thumb loops to index fingers.

There is now a central triangle. Pass the thumbs into this triangle from the radial side, distal to the ulnar little finger string, but proximal to the string that runs straight across. Pick up the sides of the triangle and return.

[1] 23, p. 156 B.

Pass the thumbs into the index finger loops from the proximal side. Navaho them and release index fingers.

Transfer thumb loops to index fingers.

There are two loops near each little finger which are caught down by the ulnar little finger string. Pass each thumb into its respective loop from the distal side and with the backs of the thumbs pick up the ulnar strings of the loops and return. Pass the thumbs into the index finger loops from the proximal side. Navaho them and release index fingers.

Transfer thumb loops to index fingers.

Pass the thumbs into the centre of the figure distal to the ulnar little finger string and proximal to all the other

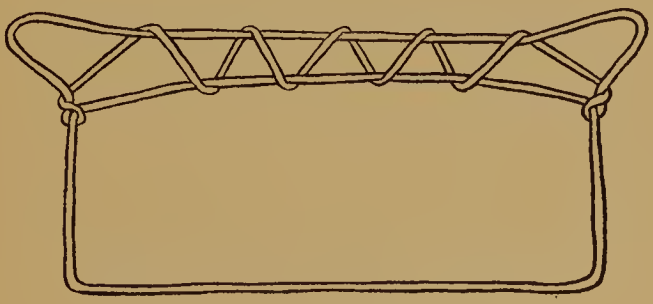

FIG. IB.—THE MOUNTAIN

strings. Release little fingers and extend gently by drawing down the thumbs.

According to Jenness,[1] as soon as the figure of 'the kayaker' is made, the Indian Point Eskimo begin to chant, and continue throughout the process of making 'the mountains':

> I was paddling in the summer.
> As I paddled contrary winds arose against me,
> Snow fell on me and the rain beat down on me.
> High up out there I saw the mountains.

[1] 23, p. 156 B.

The song concludes with the appearance of 'the mountains'. If the strings are heaped together it is because the mountains were wrapped in fog; but if they are separate and distinct the weather had cleared and the mountains showed up clearly.

2. The Salmon River (*Thlinkit Indian*)

Opening A with the Middle Fingers.—Pass the thumbs proximal to the middle finger loops and with their backs

FIG. 2

pick up the ulnar middle finger strings. Release the middle fingers.

Transfer the little finger loops to the thumbs, keeping these three loops on the thumbs in their right order.

Pass the little fingers into the thumb loops from the proximal side and hook down the distal ulnar thumb string (that runs straight across).

With the right index finger pick up from the proximal side the distal radial right thumb string, and with the left index finger pick up the same (not distal) string from the left thumb, lifting this string off the thumbs.

Lift off the thumbs the straight string passing between them and extend.

This represents a river flowing between two mountains.[1]

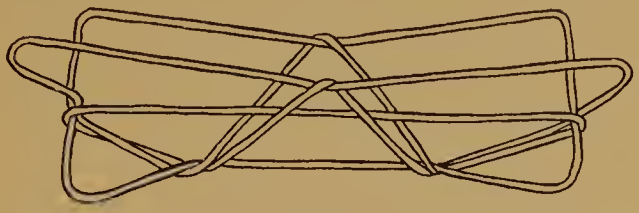

FIG. 2A.—THE RIVER FLOWING BETWEEN MOUNTAINS

Pass the middle fingers from the proximal side through the index finger loops and take hold of the radial thumb string between the index and middle fingers. Turn these fingers down and then up away from you, thus picking up the radial thumb string on the tips of the index fingers.

Release the thumbs and extend.

This represents the same river flowing beside a range of mountains.

With the backs of the thumbs pick up from the proximal side the strings which cross obliquely the index finger loops.

The figure is now in two planes, and represents the mosquito that lives in the river. The proboscis lies in the centre between the thumb and index finger strings, whilst the long wings sweep down towards the little fingers.

Release the index fingers. Pass the index fingers into the thumb loops from the distal side. Release the thumbs and extend.

Here the river has reached the plains and has only a single mountain beside it.

With the left thumb pick up from the proximal side the straight string which forms the ' river ' at the base of the mountain. Rotate the thumb once clockwise, thus wrapping the string once round it. Pass the right thumb into the left thumb loops and extend.

[1] This figure has been described from St. Michael Island, where it is called ' Two Mountains and a Stream '—**13, p. 92.**

Pass the thumbs from the proximal side into the index loops. Navaho them and release the index fingers.

Transfer the thumb loops to the index fingers and extend.

This shows a man standing up in a boat, whilst near the right hand is a salmon.

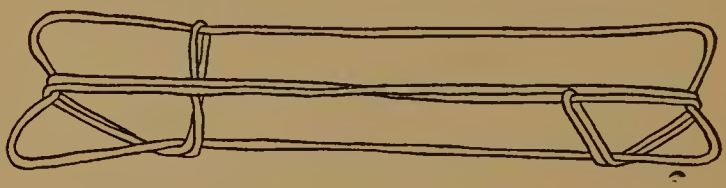

FIG. 2B.—A MAN FISHING AND A SALMON

Release the right little finger with a jerk: the man throws out his line and catches the salmon.

3. The Caribou in the Willows [1]

Position 1.—Place the palmar string of each hand over the back of the middle finger.

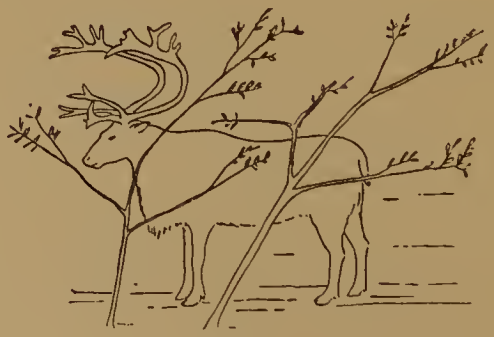

FIG. 3

[1] 23, p. 35 B.

With the right index finger pick up from the proximal side the left index string, and with the left index finger pick up from the proximal side the right index string through the loop just made (as in Opening A).

Repeat with the ring fingers. There is now a loop on each digit.

Pass the right index away from you, distal to all the strings, and then bend it and pass it towards you proximal to all the finger loops and into the thumb loop from the proximal side. Bending it over the radial thumb string, turn it up away from you and return with this string on its tip, releasing the right thumb.

Twist the right index, with its strings, once clockwise (i.e. away from you). This is a rather difficult movement, but it can be simplified by putting the left index down between the right index and middle finger strings, thus isolating the right index loops.

Insert the right thumb into the right index loop from the proximal side, and with the right thumb and index take hold of the left radial index string and draw it through the right thumb-index loop, allowing this to slip off. Release the left index.

Release the left thumb loop and replace it by the loop held between the right thumb and index.

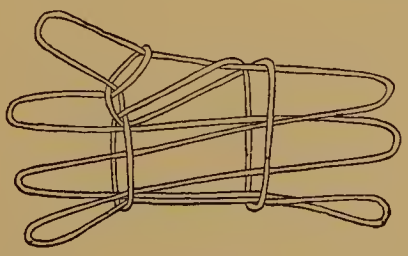

FIG. 3A.—THE CARIBOU IN THE WILLOWS

Separate the hands and you have ' The Caribou in the Willows '.

The Barrow natives say, ' The caribou, it is said, when it became hot, stayed in the willows, but when it grew cool it went away.'

Release the middle and ring finger loops and you have the caribou going away.

4. A Fish-net Torn by Polar Bears [1]

Opening A.—Pass the thumbs distal to the radial index, and proximal to the ulnar index and radial little finger

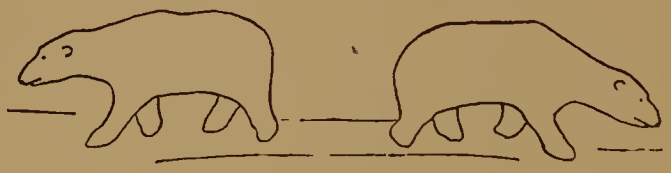

FIG. 4

strings. With their backs, take up the radial little finger strings and return.

Pass the middle fingers distal to the index loops and take up the ulnar thumb strings from the proximal side. Release the thumbs.

Pass the thumbs distal to the radial index strings and proximal to all the other strings. With their backs take up the ulnar little finger strings and return.

Release the index fingers. Transfer the middle finger loops to the little fingers and both the little finger loops to the index fingers, keeping them in the right order.

Pass the little fingers into the thumb loops from the proximal side. Hook down the radial thumb string and release the thumbs. Keep the little fingers hooked down.

[1] 28, p. 56 B.

Pass the thumbs through the little finger loops from the distal side, and upwards into the distal index loops from the proximal side. With their palms draw down the distal ulnar index strings, and then with their backs take up from the proximal side the ulnar little finger string (that runs straight across).

Release the little fingers and transfer the thumb loops to the hooks of the little fingers.

Transfer the index loops to the thumbs. One radial string will be found to run straight across. If this string is not proximal, it must be slipped down the thumb over the other loop until it becomes so. Then pass the index fingers into the thumb loops from the distal side and out towards you between the two radial strings. Turning the index fingers down towards you and then up away, pick up on their tips the proximal radial thumb string (that runs straight across). Release the thumbs.

This gives the ' Fish-net '.

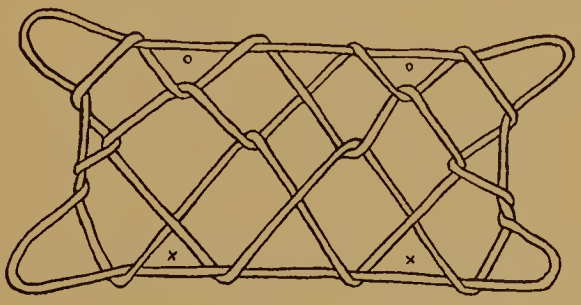

FIG. 4A.—THE FISH-NET

To obtain the two bears that tore it :

There are four strings looped at regular intervals along the ulnar little finger string, and four similar ones along the radial index finger string, giving three triangles along the lower transverse string and three inverted triangles along the upper transverse string.

Transfer the index finger loops to the thumbs.

Pass each index finger from the distal side into its respective lower lateral triangle (marked x on Fig. 4A) and out again through its respective upper lateral triangle (marked o in Fig. 4A), raising all the intermediate strings on their backs. Then bend them down over the upper transverse string (the radial thumb string), and with a half-turn pick up this string on their tips, at the same time

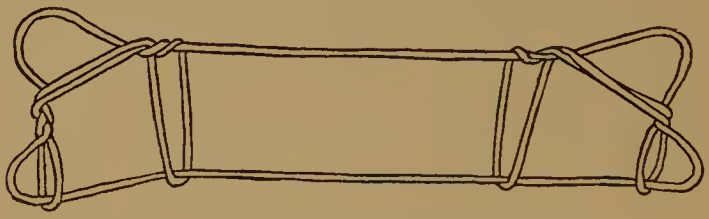

FIG. 4B.—THE TWO POLAR BEARS

releasing the thumbs. Draw the hands apart, and with a little manipulation the net will disappear and the two polar bears are seen going off in opposite directions.

5. The Rack or Platform [1]

Opening A.—Transfer the index loops to the thumbs, keeping them distal.

Pass the index fingers into the little finger loops from the distal side and with their backs take up the ulnar little finger string. Release the little fingers.

Pass the little fingers through both thumb loops from the proximal side and hook down the radial index string, holding it firmly against the palm.

Put each middle finger into its index loop from the proximal side. Bend the index and middle fingers towards you. Take between them the proximal radial thumb

[1] 23, p. 20 B.

string (that runs straight across). With a half-turn up away from you pick up this string on the tips of the index fingers allowing their original loops to slip off.

Release thumbs.

There is now a diamond with double sides in the centre of the figure. Pass each thumb into its little finger loops distally (away from you), and on its back pick up the string nearest to you that crosses its little finger loop.

Pass the right thumb into the left thumb loop from the

FIG. 5.—THE RACK OR PLATFORM

proximal side. Withdraw the left thumb and then pass it from the proximal side into both the right thumb loops, which are thus made common.

Draw the thumbs apart, and with each thumb take up its radial index string from the proximal side. Navaho thumbs, release the index fingers, and extend.

6. The Siberian House [1] (*Chukchee*)

(A long string is needed for this figure)

Position 1.—Place the palmar strings behind the middle fingers.

With the right index finger pick up the left index finger string from the proximal side, and with the left index

[1] Collected by Mrs. A. E. Hodder (1909); and *vide* 23, p. 74 B.

finger pick up the right index finger string from the proximal side through the loop just picked up (as in Opening A).

Repeat with the ring fingers.

Pull the radial thumb string with the teeth so as to form a long loop, then release it and throw the loop over all the fingers, so that the radial thumb string is now on the ulnar side of the hands and proximal to the ulnar little finger string.

Pass the thumbs through their respective triangles on the radial side of the index fingers and proximal to all the strings. With the backs of the thumbs pick up from the proximal side the string just thrown over, and return through the triangles.

With the teeth transfer the dorsal loops of each hand to their palmar aspect. Extend, and the 'house' will be seen.

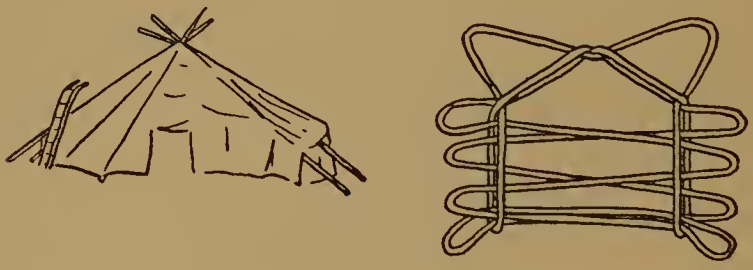

FIG. 6.—THE SIBERIAN HOUSE

Release the index fingers and extend—'break him'—the house is now broken.

Release the middle fingers and extend—'fix him'—the house is mended.

Release the ring finger—'break him'—and the two little men run away.

7. The Seal Holes [1]

Place the strings over the thumbs and index fingers.

Pass the little fingers proximal to the ulnar and radial strings, and with their backs take up the radial string and return proximal to the ulnar string. Bend the little fingers forward and hook down against the palms the ulnar index string, allowing the other loop to slip off.

Bring the hands together, palms downward, and pass the right thumb away from you under the string passing from the left thumb to the left index finger, lifting this string off the left thumb. Repeat with the left thumb and draw out.

Keeping the thumbs pointing away from you, pass them to the palmar side of the radial little finger strings, and bending them outwards take up these strings on their backs, returning through the thumb loops.

Release the index and little fingers and draw out.

FIG. 7.—THE SEAL HOLES

[1] 23, p. 127 B.

8. Eyes and Mouth [1]

Opening A.—Transfer the index finger loops to the thumbs.

Transfer the little finger loops to the thumbs, taking care to keep the three thumb loops in their right order.

Pass the little fingers into the thumb loops from the proximal side and hook down the distal ulnar thumb string (that runs straight across).

Pass the index and middle fingers into the thumb loops from the distal side. Pick up between them the proximal radial thumb string (that runs straight across) and return with this string on the tips of the index fingers. Release the thumbs.

Pass each thumb into its respective diamond from the proximal side (away from you), and with the back of each thumb pick up at the base of its index finger the string which loops *singly* round the extreme right and left sides of the figure.

Pass the right thumb into the left thumb loop from the proximal side. Release the left thumb and pass it into the right thumb loop from the proximal side, thus making the thumb loops common. Pass the thumbs into the index finger loops from the proximal side. Navaho them and release index fingers.

This gives the eyes.

To make the mouth :

Pass the index fingers into the thumb loops from the distal side. Pick up the radial thumb string and release the thumbs.

Pass each thumb into its respective 'eye' from the proximal side (away from you), and with its back pick up

[1] Collected by Dr. G. B. Gordon ; cf. **23**, p. 49 B, 'The Burbot'.

the two strings that run straight across from the ulnar index to the ulnar little finger string.

Pass the right thumb into the left thumb loops from the proximal side, and withdraw the left thumb. Pass the left thumb into the proximal (original) right thumb loops. from the proximal side, and lift them off the right thumb. Extend.

Pass the thumbs into the index finger loops from the proximal side. Navaho them and release the index fingers.

This gives the mouth.

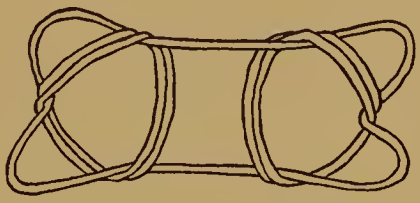

FIG. 8.—EYES

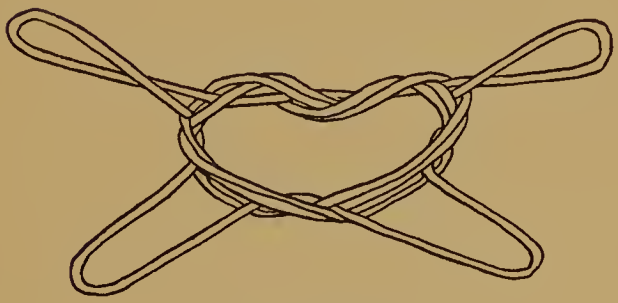

FIG. 8.—MOUTH

CHAPTER III

THE NAVAHO INDIAN

IN our first section we made the acquaintance of the people who live, move, and doubtless, on the whole, enjoy their being in what is sometimes described as ' The Frozen North ' and sometimes as the ' Polar Desert '. We learned in bare outline the nature of their existence and saw some of its shapes and details mirrored in string.

Curiosity might prompt us to turn to another situation and to investigate how far a similar state of affairs holds in quite other conditions. Fortunately we need not leave the continent to find such a situation, and one, moreover, which is fairly well defined and also, from the point of view of string figures, comparatively well-documented.

The home of the Navaho is now known as an Indian Reserve—one of the largest and most remarkable. Nevertheless this reserve represents substantially the core, or heart, of what has always been known as the Navaho country. It is a region which in elevation, climate and in the conditions which it offers for human life, differs sharply from that described above as belonging to the Eskimo, though it resembles this in being semi-desert.

Of the successive waves of migration which have penetrated America from time immemorial by way of north-east Asia and Alaska, the latest was probably that of the Athapascans, who now occupy most of sub-Arctic Canada west of Hudson Bay. Drifting down in small groups, some of these immigrants filtered into New Mexico and Arizona.

There is a Navaho legend [1] which speaks of the tribe as having crossed 'the narrow sea far away near the setting sun in the north and landed on the shores of this country'. This legend, together with the fact that their language is Athapascan, indicates that the migration was of comparatively recent date. These immigrant bands were joined by Indians of many other stocks, though the latest and most numerous accessions were apparently Athapascans who came down the Pacific coast and who are therefore closely allied with the Indians of the British Columbian seaboard. In course of time they have also absorbed, either as slaves or by intermarriage, elements from various other tribes, notably from the Pueblo Indians.

The Navaho Indians are thus a conglomerate of various elements, and this is revealed in their markedly varying physical types and social characters. They are reported to be 'the noblest of the American aboriginals', and they are certainly industrious, intelligent, and, 'on the whole, progressive'.[2] Unlike so many other tribes they show a tendency to increase steadily in numbers.[3] These characteristics are possibly not unconnected with their mixed origin and the nature of their environment.

The Navaho Indian Reserve occupies an area of nearly fifteen thousand square miles, lying mostly between the Colorado and the Little Colorado rivers in Arizona, but with a considerable portion also in north-west New Mexico and a smaller portion in south-east Utah. The reservation is remarkable more for its scenery than for its productivity, for almost everywhere desert or semi-desert conditions prevail. Not that the region is a low-lying, sandy waste. Essentially a plateau with an average elevation of six thousand feet, the territory is ringed by a fairly continuous barrier of ranges and higher lands, through which, however, ways lie open to the lower regions adjoining. One of these gaps deserves particular attention—that which leads to the Rio Grande del Norte in New Mexico.[4] On the plateau

[1] **21**, p. 128. [2] **20**, p. 43. [3] **20**, p. 41. [4] *Vide* p. 43 *infra*.

itself the landscape is diversified by flat-topped isolated hills or *mesas* and low mountains sparsely covered with piñon and ' cedar ' (thuya) trees, while at higher levels are beautiful pine forests.

Nor is this desert without beauty. Those who have never seen the Painted Desert could with difficulty picture the wonderful burning beauty of it—the flaming reds and yellows, the incandescent violet of its shadows. In the crystalline air distant mountains appear but a few miles away, and travel seems incredibly slow in the orbit of such immense horizons.

And yet the Navaho country is not a comfortable part of the world nor hospitable to plants, animals, and human kind. Situated in one of the most cloudless areas, it is bitterly cold in winter, while in summer it is parchingly hot. The air trembles and the rocks burn in the fierce heat, and down in the cañons the atmosphere is stifling. The difference in temperature between the plateau and the floors of the deep cañons is remarkable : in winter snow may cover the ground above, whilst in the depths of the clefts birds are singing in spring-like warmth. Nor are these extremes of heat and cold the only drawbacks. Violent dust-storms sweep away the face of the country in summer, and mirages of lakes and flowing rivers haunt the thirst-tortured traveller.

When the rains come, from July to September, they descend in devastating storms. Great masses of soil are washed away and the living rock is often laid bare. The run-off from these storms carves deep watercourses, which increase rapidly in depth under the combined scouring action of water and fierce wind draughts. This is indeed the land of cañons—deep-cut gorges that would long ago have won fame were they not all so superbly dwarfed by their mighty neighbour the Grand Cañon. The dry watercourses are useful as trails. But the tenderfoot who uses them in the rainy season must beware, as a distant upstream storm may convert the trail, in a few hours, into a raging torrent.

The storms of this region are wonderful. In July or August one may be driving across the desert in bright sunshine. Suddenly clouds gather. Thunderstorms—not a single storm but several from different quarters at once—break with a roar. Sheets of rain descend ; the traveller is drenched to the skin ; water floods the surface and pouring down the track soon mounts up to the axle of the car. A brief space and the storm has passed. The sun shines ; a vivid rainbow adds fleeting splendour to the sky ; the thirsty sand has drunk up its portion ; down the mighty gutters of the cañons—usually dry except on such occasions—the overflow rumbles and tears its way.

Water there certainly is in this plateau region, but most of it is at the bottom of ravines. Any surface water that may be found is often strongly impregnated with alkaline salts,[1] and the supply of drinking water is a great problem. The Navaho have a saying, ' Where there is water there is no feed ; where there is feed there is no water.' [2] The water is at the bottom of the cañons ; the grass grows on the high slopes of the hills, where melting snow provides spring moisture.

The natural vegetation is much what we would expect. Almost the only common plant of any size in the arid parts is the sage brush. This dots wide tracts with a melancholy grey-green, but expanses of bare rock are everywhere exposed. Even cacti are not common, though they abound in the deserts farther south. But, as in so many arid regions, so much soil as there is is rich in stored plant foods. After rain, provided this is not too violent, low-growing plants carpet the ground with flowers for a short period. Around springs too there is rich vegetation, eloquent of the prospects awaiting irrigation where it is practicable.

As for native animal life, it is naturally not abundant.

[1] Sometimes on entering a room one can actually smell the drinking water placed in a jug on the table.

[2] 40, p. 472.

Mammals in particular are poorly represented. In the upland forests deer, it is true, are plentiful, and cougars and a few bears prey upon them. For the rest, apart from the rabbits and ground squirrels, coyotes are the commonest inhabitants of the waste. These ' prairie wolves ' as they are commonly called, are small, in habit more like a fox or a jackal than a wolf, and are distinctive and familiar objects. Reptiles are rather more numerous. Snakes are abundant, while the curious little ' horned toad ' (*Phrynosoma cornutum*) is ubiquitous in the desert. In spite of its name this creature is really a small lizard, rather flattened in shape and covered with stiff spikes. Being sand-coloured it is difficult to see and exceedingly uncomfortable to step upon.

* * * * *

It would not be difficult even from the foregoing rough sketch to guess what must have been the chief activities of the Indians who entered this area and sought a living there.

Hunters, most of them, at first they roamed over the land and readily developed predatory habits—if, indeed, they did not bring such with them. In any case dearth and famine in the uplands, confronted by the comparative opulence of settled agriculture in the adjoining river valleys, provoked here the immemorial antagonism of cultivator and nomad. Their marauding descents upon the *pueblo* settlements of the Rio Grande earned the Navaho in early times a name as feared and hated as that of their neighbours the Apaches.

Agriculture in those days they practised little, if at all, and it is therefore the more surprising to find that the name first applied to them by strangers signifies ' great seed-sowing ' or ' great fields '.[1] The explanation is simple and instructive. In the seventeenth century the Spaniards designated ' Apaches de Navajo ' [2] those marauding bands

[1] See footnote 3, p. 43.
[2] The Spanish ' j ' is best rendered by our ' h '.

who preyed upon the Tewa village Navahu and upon its agricultural lands stretching to the north. This they did to distinguish them from other Apache bands, and thus the name became attached to the plateau peoples.[1]

Now the Spaniards, as is well known, introduced horses, oxen, and sheep into America, and it is on record that a flock of sheep and goats was stolen from the Spaniards of the Rio Grande by a band of Navaho.[2] Hence a curious and interesting sequel, for this act, simple and natural as it was, initiated nothing less than a social revolution. The flock was carefully tended, and it multiplied, and more and more as it grew the Navaho were assimilated to the life of the shepherd. For the increasing flocks food, water, and labour in increasing quantity had to be found, and so the Navaho were launched upon their career as pastoralists. Depending more on their own stock, they raided their neighbours less.

The conversion of the Navaho from predatory rovers to respectable pastoral nomads naturally did not occur in a day. The martial prowess and the security of their wilderness were advantages not readily resigned. Long after white settlers had penetrated to New Mexico and settled in the Rio Grande valley the Navaho were troublesome and dangerous. As late as 1863 a punitive expedition had to be organized against them, and by destroying a large number of their sheep reduced them to submission and captivity. Nevertheless, broadly speaking, it is to sheep that the Navaho owe their pacification and amelioration, and on these also is based their present economic régime.

In conditions so arid, and with a rainfall highly erratic, the Navaho can practise little agriculture. Away from the borders of the San Juan river it is only in spots where underground water is near the surface that agriculture is possible. Here by planting deep the Navaho raise crops of corn, beans, pumpkins, and melons.[3]

[1] 20 p. 41. [2] 6, p. 166 ; and *vide* p. 39 *supra*.
[3] It is curious and interesting to find a similar type of agriculture

Far more important are their pastoral pursuits. There are no villages: the unit is the family or sometimes a group of families living together. Each group is continually on the move. In the spring feed may be found on the desert plains, but as summer approaches the Indians must move with their flocks to the uplands. Here they find shade and pasturage, and they also stay long enough to raise their small crops. As winter draws on they are again on the move, this time making towards the shelter of the wooded *mesas*.[1]

In keeping with the restless life of these Indians is the nature of their dwellings and the customs they observe with regard to them. By far the commonest type of Navaho dwelling is a simple conical erection of sticks, branches, and earth,[2] and in summer mere 'lean-to' sheds, or even small erections of branches, are deemed sufficient. The habit of abandoning or burning a dwelling in which a death had occurred (*achindi hogan* [3]) was also in keeping with wandering habits.[4]

The Navaho inhabit what is known as the cultural area of the south-west. It is an area comparatively isolated from the rest of the United States, and is almost encircled by deserts or by difficult mountains. In spite of these barriers, however, certain outside influences have made themselves felt. On the one hand, the Pueblo Indians in the south, who have themselves been in contact

practised in south-west Andalusia. Jessen ('Sudwest-Andalusien', PETERMANS MITTEILUNGEN, Erganzungscheft 186, p. 40) refers to the *Navazos* of the sand-dune coastal country—oblong excavations, ten to twenty feet deep and fifty up to several hundreds of yards long and broad, in which fruit and vegetables (especially melons and tomatoes) are grown. Their fertility, he remarks, depends on the fact that their floors are kept permanently moist by the ground water.

Perhaps in the light of this description we are in a position better to understand the 'seed-sowings' of the Tewa village called 'Navahu'.

[1] **4**, p. 73. [2] For further details *vide* p. 49 *infra*. [3] **21**, p. 151.

[4] More substantial houses of an ordinary type are now replacing the earlier types of dwelling.

with Mexican civilization, have exercised an influence, whilst on the other the culture of the Plains has filtered through.[1] From the Mexican source came probably silversmith's work, from the Pueblos the great improvement, if not the actual adoption, of weaving. In both arts the Navaho have shown skill and enterprise and have developed a technique quite their own.

Lastly, we may say that the Navaho are a 'highly religious people having well-defined divinities, a vast mythic and legendary lore and thousands of significant formulated songs and prayers'.[2]

* * * * *

It is a significant fact that of the twenty-seven Navaho string figures so far described, seven represent stars. No one who has spent even one night under the Arizona stars will be surprised at this. The Lowell Observatory is at Flagstaff, not many miles south of the reservation. At an elevation of six thousand feet and in an atmosphere normally of exceptional dryness the brilliance of the stars is marvellous. Even if they were not looked up to, as we may suppose they were from early times, as sure and lofty guides, the denizens of the skies must have impressed themselves upon these wanderers gifted with no mean artistic spirit. The Navaho have names for various constellations, and numerous Indian religious ceremonies connected with the heavenly bodies might be cited, significant among them the Sun dance of the Arapaho and the Morning Star ceremony of the Pawnee. Some of these ceremonies, moreover, are still peculiarly sacred. In the Morning Star ceremony a maiden was annually sacrificed up to within the last century, and even as late as 1906 the ceremony was considered too sacred for even a white woman to behold.[3] We shall not be surprised, therefore,

[1] *Vide* p. 49 *infra*. [2] 20, p. 45.

[3] The writer well remembers the humiliation of being excluded

to find that the same order of ideas finds expression in string, the figure of the Pleiades [1] being perhaps the best attempt to represent a constellation in this way.

Mention has been made of the violent storms that harass this region. ' In the South-west (cultural area) gods travel with rainbows and lightening and wrap themselves in clouds tied with rainbows.' [2] The imagery of clouds and storms pervades Navaho decorative art as well as their mythology. It appears also in Navaho string figures. The symbol shown in Fig. 10, p. 45 (or some similar form), representing storm clouds, is common in the art of the South-west, and representations of this sort are really prayers for rain and therefore for abundant crops or pasture. There is also a remarkably good imitation in string of Storm-clouds,[3] with the added advantage that in this medium the artist is able to represent motion and, by repetition, to make cloud after cloud appear. The idea is evidently to represent cumulus clouds massing as a storm approaches.

Again, for dramatic effect, what figure can equal ' Lightning ' ? [4] Here is represented in string the design so common on Navaho blankets—the conventional zigzag of the ' forked lightning ', but again with the advantage of rapid motion.

Although there are ten string figures representing animals, these figures are not particularly impressive. Nothing larger than a coyote is represented, and, except for some imitations of birds, the animal kingdom is otherwise represented only by a mouse, a lizard, two worms and a butterfly. That this should be so is understandable when we remember the character of the country above described.

There is, however, one interesting point which arises in this connexion. Horses and sheep play so important a part in the lives of these Indians that we may well be

from this ceremony after having travelled from Chicago to Oklahoma in order to witness it.

[1] *Vide* p. 52 *infra*. [2] 10, p. 15. [3] *Vide* p. 53, *infra*
[4] *Vide* p. 54 *infra*.

surprised to find no representation of them in string. Indeed, it seems that no American Indian has portrayed either in this way. It can hardly be that the Navaho lacked ability to invent the figures. They are clever enough at representing certain animals. The 'Butterfly', for instance, is a very simple figure in construction, but it presents the characteristics of a butterfly so admirably—the large wings, the spiral coil of the insect's tongue—that it is perhaps one of the most striking and beautiful of all string figures.[1] The 'Two Coyotes',[2] again, exhibits an admirable skill in animal portraiture, in this instance of animals in motion. With their long, bushy tails trailing behind them, they are seen 'loping' off across the desert and growing smaller and smaller in the distance. The long, level lines of the desert and the horizon are represented by parallel strings. Now, the coyote is not only common but he is also the object of many folk-tales. In some he appears as a hero, in others as a fool.[3] All this makes it the more strange that the domestic animals—so familiar and so vital to the Navaho—do not appear in this branch of his art. Can it be that they are too prosaic, that they do not touch any depth of imagination and romance? Or is it because they are of too recent acquisition and that the string figures descend from a more remote period?

The Eskimo represents his dog drawing a sled,[4] the Navaho depicts the carrying of wood.[5] These are prosaic matters enough, and in fact the more commonplace an object the more likely, in some respects, is a string figure named after it. Against the second assumption also there is strong evidence from other quarters,[6] and a question, therefore, the matter must remain for the present.

One more animal deserves passing attention. There are three figures of an owl,[7] and this is a little difficult to

[1] *Vide* p. 56 *infra*. The butterfly is the symbol of the rain-filled pools at which it drinks by means of this long proboscis.
[2] *Vide* p. 57 *infra*.
[3] **10**, p. 175. [4] *Vide* p. 19 *supra*. [5] *Vide* p. 58 *infra*.
[6] *Vide* Conclusion, p. 141. [7] **22**, pp. 53 ff.

understand. The owl is no doubt common enough in these parts, but we should hardly expect him to attract so much attention. The explanation in this case is probably of a purely mechanical or manipulative nature. The Navaho have a series of movements in their string figures which, with very slight alteration, give different results. Thus five of the 'Star' figures, the 'Coyotes' and the three 'Owl' figures all belong to this group. It is very possible that when one figure had been made resembling an owl,[1] subsequent figures bearing a resemblance to this were called 'Owls' also.[2]

Of figures connected with human beings we have a poor representation of a Man,[3] but a very good one of human 'Breast-bone and Ribs'.[4] The presence of this among Navaho figures may just possibly be traceable to the influence of desert environment. The protruding ribs of a skeleton in the desert are among the commonplace of old-time travellers' tales.

Among miscellaneous figures expressive of the life of human beings in this region, the 'Bow' and the 'Arrow'[5] bespeak clearly the life of the early hunter, while the figure 'Carrying Wood'[6] is peculiarly interesting.

In most arid and sub-arid regions the supply of fuel is limited. The Navaho have often to travel long distances to find it, and, when found, it is frequently carried nowadays on a donkey. But the fuel most commonly available in such places is brushwood and small branches, the pluckings of low bushes and often of thorny scrub. In proportion to its bulk a bundle of this fuel is light and, just as in many parts of the Mediterranean area, such bundles can be carried if necessary by a human being. The Navaho woman will in fact carry a large bundle on her back, supporting it by a band passing over the forehead. The figure 'Carrying

[1] As is certainly the case in Owl, No. 1, **22**, p. 53.
[2] *Vide* Conclusion, p. 138.
[3] **22**, p. 184.
[4] *Vide* p. 63 *infra*.
[5] **22**, pp. 212 and 133.
[6] *Vide* p. 58 *infra*.

Wood ' represents this band and also the bundles of wood supported by it.

Lastly, we may notice a very interesting group of figures representing dwellings. The summer shelter of the Navaho [1] is often no more than a brushwood windbreak with an awning, but their winter *hogans* offer much more protection. They are roughly dome-shaped erections constructed of posts stood on end and covered in with branches, twigs, and earth or ' adobe '. They are low and have a low doorway with a short passage leading to it.[2] Hence, if we disregard the passage, the string figure *hogans* are quite fair representations of them.[3]

So far this is quite as we should expect to find it. But if we turn to the neighbouring Apache Indians we are met with what at first sight seems an anomaly. The characteristic Apache dwelling is dome-shaped, and resembles the Navaho *hogan*. Yet we have an Apache ' cat's cradle ' portraying what is unmistakably a conical *tipi*.[4] Now why should the Apache who live in a hut of one shape make a string figure of a hut of another shape ? The *tipi* is a circular frame of poles brought together at the top and formerly covered with bison skins sewn into one piece. These poles protrude in various directions at the top of the *tipi*, and here also is a hole to let the smoke out, the hole being bounded on each side by triangular flaps. The door is a piece of dressed skin, frequently decorated with porcupine quills or other ornaments. This *tipi* is, in fact, the best known and most widely distributed American Indian dwelling, and is particularly characteristic of the Plains Indians.

Now, it may be remembered that mention was made above [5] of certain gaps in the physical barriers which surround the South-west cultural area. One of these gaps allowed cultural influence to filter through from the Plains, and naturally the tribe of Indians who lived nearest this

[1] *Vide* p. 44 *supra*. [2] 20, p. 44. [3] 19, pp. 47, 48.
[4] *Vide* p. 61 *infra*. [5] *Vide* p. 39 *supra*

break would be the most affected by the Plains' cultural influence. The most easterly tribe of the Apaches are the Jicarillo, and these Apaches have, in actual fact, adopted the *tipi* dwelling of the Plains Indians. Now, when we investigate the origin of the string figure referred to we find that it is precisely from this tribe that it was collected.[1] Here, then, we have a striking instance—we could hardly hope for a better—of the fidelity of string figures as representations of the life and interests of their inventors.

The same fact is illustrated, curiously enough, in this area by another instance in the inverse direction. The Navaho make a string figure which they call the ' Apache Door ', and it at once strikes us as strange that they should not call it a Navaho door. But a mere glance at the figure [2] shows that it is a representation of the flap of ornamented bison skin with which a *tipi* was closed ; it does not in the least resemble the passage and door of a Navaho *hogan*. Now the *tipi*, as we have seen, is characteristic chiefly of the Plains Indians, but it is also used by an Apache tribe who are neighbours of the Navaho. It is only natural, therefore, that the Navaho should know this type of tent-flap as the ' Apache Door '. We do not know whether the Navaho invented this particular figure, or whether they merely borrowed it. In any case, they could hardly apply it to the door of one of their own *hogans*, and hence its foreign designation.

Little or nothing is known of the magical significance of string figures among American Indians, if indeed such magical significance existed at all. In this respect there is a marked contrast with the Eskimo.[3] An interesting case of divination by means of a string figure has, however, come to light, and is, so far as we know, the only case of its kind recorded from any country. It comes from the Havasupi tribe,[4] who inhabit the Colorado cañon and are neighbours of the Navaho. If an infant is expected and

[1] **22**, p. 246.
[2] *Vide* p. 62 *infra*.
[3] *Vide* p. 20 *supra*.
[4] **1**, p. 181.

it is desired to determine the sex, a friend will make a 'cat's cradle'. According as the figure made resembles a boy or a girl, this is what the anxious parent may expect. But this seems to be a case of divination pure and simple. There is no thought, apparently, of influencing the sex of the coming child.

9. The Pleiades [1] (*Dil-ye-he*)

Opening A.—Pass each thumb distal to the index loop and take up the radial little finger string from the proximal side.

Fig. 9

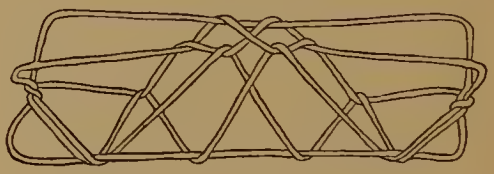

Fig. 9A.—The Pleiades

Pass each middle finger distal to the index loop and take up the ulnar thumb string from the proximal side and return. Release thumbs.

Pass each thumb distal to the radial index string and proximal to all the other strings. With the backs of the thumbs take up the ulnar little finger string and return through the index loops. Release little fingers.

Pass the index fingers proximal to the middle finger loops and pick up the ulnar middle finger strings with their backs. Release middle fingers.

Pass the thumbs from the proximal side into both the index finger loops. Navaho thumbs.

Pass the middle fingers into the thumb loops from the proximal side, passing them radial to the proximal ulnar thumb string, but ulnar to the distal ulnar thumb string. Draw down this string and hold it against the palms.

Release the thumbs and if necessary twist the distal ulnar index string round that digit to display the figure.

[1] 22, p. 56.

10. The Storm-clouds [1]

Hold part of the string between the thumbs and index fingers, the hands being about six inches apart. Make a small loop by bringing the right hand towards you and to the left. Hold the loop between the thumbs and index fingers so that both the loops hang down, and pass both index fingers towards you through both loops. Draw the hands apart and turn the index fingers up.

Pass the right thumb distal to the proximal radial index string and pick up the proximal ulnar index string from the proximal side. Pass the left thumb distal to the proximal index loop and pick up the distal ulnar index string from the proximal side.

Pass the right middle, ring and little fingers into the distal right index loop from the proximal side, and hook down the right distal radial index string. Pass the left middle finger, ring and little fingers through the proximal left index loop from the proximal side and hook down the left distal radial index string.

Keeping the middle finger pointing towards you, catch between it and the ring finger of each hand the proximal radial index string and pull this through the loop already held down, allowing this to slip off the digits.

Release the thumbs and give the ulnar index string an extra turn round that digit in each hand, to display the figure—' One Storm-cloud '.

*Pass the thumbs away from you (i.e. from the distal side) into the middle finger triangles, and draw towards you with their backs the diagonal string forming their upper boundary, then hook the thumbs over the other diagonal string (the proximal ulnar index string), allowing the first diagonal to slip off the thumbs.

Release the middle, ring, and little fingers, pass them

[1] 22, p. 236.

from the distal side into the thumb loops and release the thumbs.

Pass the middle fingers radial to the two diagonal strings. Draw these back and hook the middle fingers over the distal ulnar index string, releasing the extra twist taken round the index fingers and drawing the string down through the loop still held by the ring and little fingers.

Release the ring and little fingers and put them into the loops held by the middle fingers.

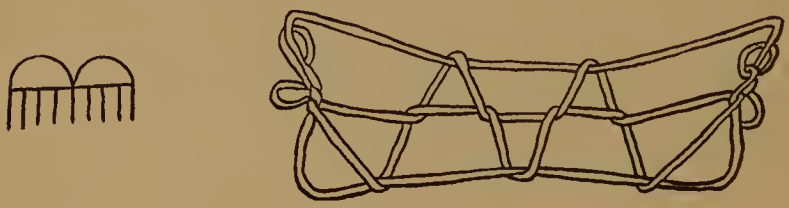

FIG. 10.—TWO STORM-CLOUDS

With the tips of the index fingers pick up the proximal radial index string that runs straight across. This forms two storm-clouds.

By repeating the movements from *, more and more storm-clouds can be made.

11. LIGHTNING [1] (*Atsinil-klish*)

Hold part of the string with the thumbs and index fingers, the hands being about six inches apart. Make a small ring by passing the right hand away from you and towards the left, and hold it with the thumb and index finger of the right hand, so that the small ring is farther away from you.

Insert the index fingers, pointing downwards, into the

[1] Collected by Dr. A. C. Haddon in 1901. **19**, p. 51.

small ring, and the thumbs, also pointing downwards, into the large loop. Draw tight.

Turn the thumbs upwards. Insert each thumb into its index loop from the distal side and take up the ulnar index string from the proximal side.

Pass each middle finger distal to the radial index string and take up the ulnar thumb string from the proximal side.

Pass each ring finger distal to the ulnar middle finger string and take up the radial index string from the proximal side.

Pass each little finger distal to the ulnar ring finger string and take up the ulnar middle finger string from the proximal side.

Extend the thumbs as far as possible, then release them gently and throw the released loops over the other strings. The double strings should be close together.

Without drawing tight, pass the thumbs from the proximal side into the little finger loops, and, keeping the four fingers of each hand firmly pressed together, raise up with the thumbs the radial litttle finger string.

This last movement requires a certain ' knack ', but when this is acquired the sudden flash out of the ' lightning ' makes this perhaps the most effective figure.

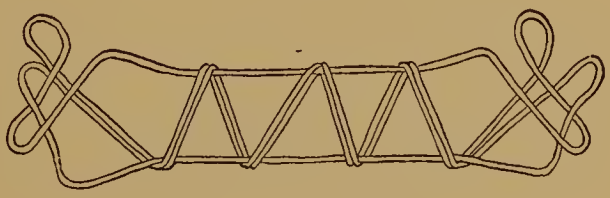

FIG. 11.—LIGHTNING

12. The Butterfly [1] (*Ga-lo-ki*)

Hold part of the string with the thumbs and index fingers, the hands being about six inches apart. Make a small ring by passing the right hand away from you and towards the left, and hold it with the thumb and index finger of the right hand, so that the small ring is farther away from you.

Insert the index fingers, pointing downwards, into the small ring, and the thumbs, also pointing downwards, into the large loop. Draw the hands apart.

Twist each index finger with its loop down away from you and up towards you five times.

Pass the thumbs from the proximal side into the index finger loops. Navaho thumbs.

There is now a loop on each thumb and index finger. Bring together the hands so that the two thumbs and the two index fingers touch tip to tip. Slip the right thumb loop on to the left thumb, and the right index finger loop on to the left index finger, taking care in each case that the new loop remains distal to the original one.

Pass the right thumb and index finger between the left thumb loops and separate the digits, picking up with the index finger the distal loop (the original right thumb loop) and with the thumb the proximal loop (the original left thumb loop).

Take between the right thumb and index finger the two left index loops and lift them off that finger. Pass the left thumb and index finger between the two loops and separate them, picking up with the left index the ulnar loop (the original right index loop) and with the left thumb the radial loop (the original left index loop).

Separate the hands and draw the strings tight, so that the twisted strings form a spiral. With the little fingers

[1] 22, p. 219.

hook down and hold against the palms the ulnar index and radial thumb strings, keeping the other strings well up on the thumb and index finger to extend the figure.

FIG. 12.—THE BUTTERFLY

The spiral coil represents the coiled proboscis of the butterfly, while by moving apart the thumbs and index fingers the insect can be made to flap its wings.

13. The Two Coyotes [1] (*Ma-i-at-sani-il-watli*)

Opening A.—Pass the thumbs distal to the index loops and take up the radial little finger strings from the proximal side.

FIG. 13.

Pass the middle fingers distal to the index loops and take up the ulnar thumb strings from the proximal side. Release thumbs.

Pass the thumbs proximal to the radial index string, distal to the ulnar index string and proximal to all the other strings. With the backs of the thumbs take up the

[1] 22, p. 60.

ulnar little finger string and return through the index loops. Release little finger.

Pass the index fingers proximal to the middle finger loops and pick up the ulnar middle finger strings with their backs. Release middle fingers. Navaho index fingers, but do not draw tight.

Pass the thumbs into the index loops from the proximal side. Navaho, but still do not draw tight.

There is now a string crossing each thumb loop that runs straight across the figure. Turn the thumbs down into their own loops, hooking down this string and allowing the original thumb loop to slip off.

Draw the hands apart and you have the ' Two Coyotes '.

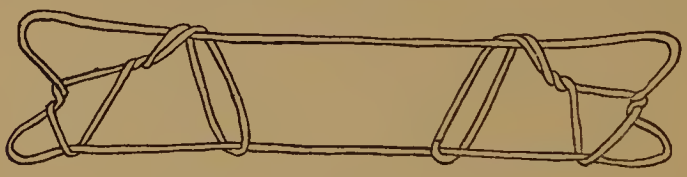

FIG. 13A.—THE TWO COYOTES

By alternately bending and straightening the index fingers and at the same time drawing the hands gently apart, the two coyotes ' lope ' away in opposite directions.

14. CARRYING WOOD [1] (*Chiz-jo-yet-li*)

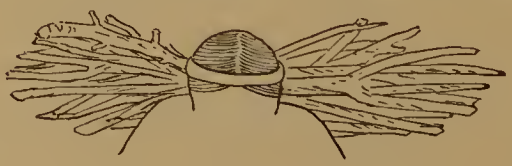

FIG. 14

Opening A.—Pass the thumbs and index fingers distal to the index loop and into the little finger loop from the proximal side. Release little fingers.

[1] Collected by Dr. A. C. Haddon in 1901. **19**, p. 47.

Navaho the thumbs and index fingers and extend gently.

There is a string that runs straight across on the distal side of the thumb triangles. Bend each thumb into its own triangle over this string and extend, keeping the thumbs pointing away from you and allowing their original loops to slip off.

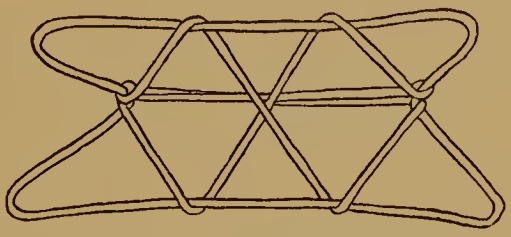

FIG. 14A.—CARRYING WOOD

The two central strings that lie side by side represent the carrying band that passes over the forehead of the Naavho; the other strings represent the wood that is being carried.[1]

15. A HOGAN [2] (*Hogan*)

Hold the left hand with the fingers pointing upwards. Pass the string over the index and middle fingers of the left hand, allowing a long loop to hang down from its palmar aspect.

Place the right hand within the long loop from below. Pass the index finger of the right hand between the index and middle fingers of the left hand, take up from above the dorsal string and pull it out between the fingers as far

[1] *Vide* p. 48 *supra*.

[2] Collected by Dr. A. C. Haddon in 1901. **19**, p. 47.

as it will go towards the right, letting the long loop slip over the back of the right hand. Draw tight.

Place the right hand within the long loop from below. Pass the right thumb and index finger distal to the short transverse string. Take up the two strings immediately between the index and middle fingers of the left hand and draw toward the right, so that the loop on the back of the hand slips over the hand and over the two central strings. Draw tight.

There are now a knot and four strings lying along the palm of the left hand, two central strings which pass between the index and middle fingers, and two lateral strings. Pass the long ulnar lateral string over the left little finger and the corresponding radial lateral string over the left thumb.

With the thumb and index finger of the right hand pick up the transverse string of the knot on the palm of the left hand and draw it gently to the right.

This figure represents a Navaho *hogan*.

FIG. 15.—A HOGAN

16. A Tipi [1] (*Jicarillo Apache*)

Hold the left hand palm upwards. Lay the string over the four fingers so that there is a straight string across the palm and a long loop hanging down.

Take the dorsal loop in the right hand and bring it forward over the tips of the left fingers, so that the radial string passes between the index and middle fingers and the ulnar string between the ring and little fingers. Draw tight and let the loop hang from the palm.

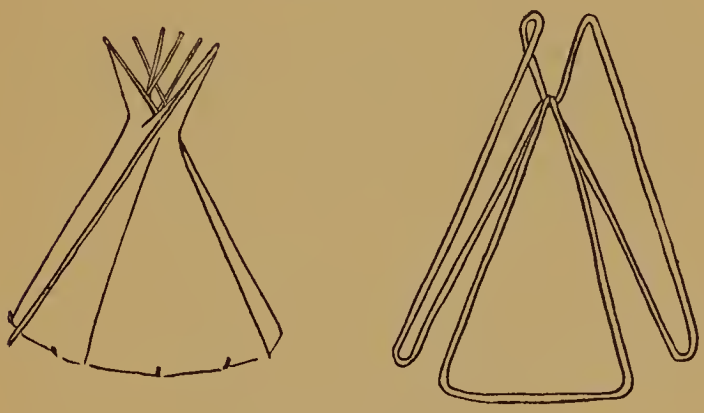

FIG. 16.—A TIPI

Pass the right index finger proximal to the palmar string and draw through the pendant loop, so that the palmar string lies above it.

Pass the right hand through the pendant loop from the proximal side, making it the right wrist string.

Pass the right little finger from the distal side into the left little finger loop and pick up the radial left little finger string.

[1] 22, p. 246.

Pass the right thumb from the distal side into the left index loop and pick up the ulnar left index string.

Extend the figure with the right hand below, palm upwards, and fingers pointing away from you, and the left hand above, palm downwards and slightly twisted towards you.

This figure represents the characteristic *tipi* of the Plains Indians adopted by the Jicarillo Apaches.[1]

17. The Apache Door [2]

Opening A.—Pass the thumbs, middle, ring, and little fingers of each hand into their respective index loops from the proximal side, so that the index loop slips over the whole hand and forms a wrist loop.

With the thumbs pick up from the proximal side the radial little finger strings.

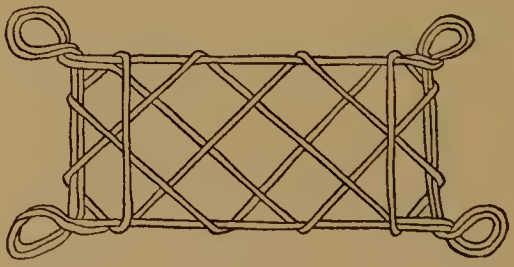

FIG. 17.—APACHE DOOR

With the little fingers pick up from the proximal side the ulnar thumb strings.

Grasp all the strings in the centre of the figure with the left hand and pass them between the right thumb and index finger from the palmar to the dorsal side, and let

[1] *Vide* p. 50 *supra.*

[2] 22, p. 12.

them hang proximal to the two right thumb loops. Take these two thumb loops with the left thumb and index finger. Withdraw the right thumb from all the strings, except the wrist string, and then replace these two loops on the right thumb without twisting them. Repeat with the left hand.

Pull each wrist string over the tips of the fingers to the palmar side. Rub the hands together, then draw them apart sharply, when the ornamented tent flap will be seen.

To undo this figure release the thumbs and draw out.

18. Breast-bone and Ribs [1]

Wind the string loosely four times clockwise round the left index finger, beginning at the base and ending near the tip. Press the middle finger against the strings to keep them in place.

Pass the right index finger up from the proximal side through the loops beside the left index, being careful not to disturb the order of the strings.

Draw the hands apart, with the index fingers pointing upwards. If the previous movements have been done carefully it will be found that there are four parallel strings on the radial side of the index fingers, whilst on the ulnar side the distal left string runs down to become the proximal right string.

Pass the middle and ring fingers of each hand distal to their respective proximal ulnar strings, but proximal to all the other ulnar strings. Catch between them the proximal radial string and draw this back through the loops on the middle and ring fingers.

Pass the middle and ring fingers through the loops just pulled back and repeat the movement with the now proximal radial string.

[1] This unpublished figure was taught to me in 1906 by Mrs. Jayne.

Repeat in turn with the second and distal radial strings, and then with the second and distal ulnar strings.

Place this last loop on the hooks of the little fingers and hold it against the palms. Give the uppermost string that runs straight across an extra turn about the tips of the index fingers, to extend the figure, which now gives a realistic representation of a human breast-bone and ribs.

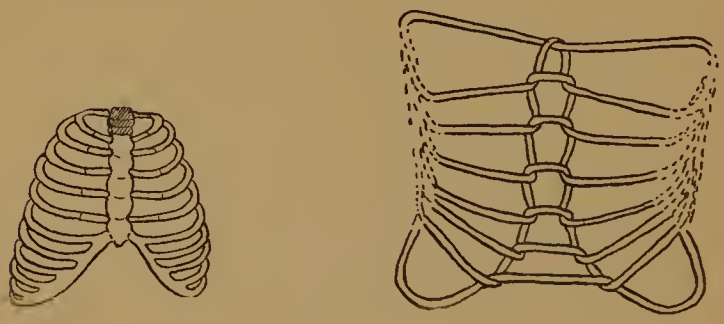

FIG. 18.—BREAST-BONE AND RIBS

CHAPTER IV

THE KIWAI PAPUANS

A RIVER, unlike a horse, may not be judged by its mouth. There are travellers to whom a great tropical river, with its often silent and vegetation-shrouded course and its sense of oppressive mystery, is the queen of streams. It exercises a fascination ; it lures the traveller on.

Yet the mouth of many tropical rivers can hardly be said to be alluring. There are, of course, many ways in which a tropical stream may reach the sea. It may emerge, like the Amazon, in a bold straightforward way ; or, like so many of the West African rivers, it may lose itself in swamps. Or, again, like the Ganges of India, it may so encumber itself with silt that it slinks to the sea through vast mud-flats broken up into a hundred mean and barely navigable channels. Of this latter description is the Fly River of Papua, in the delta scenery of which is the setting of our next study of string figures.

The Fly River rises in the Main Range of New Guinea near Mounts Donaldson and Blucher, and is over six hundred miles long. It flows through the west of British New Guinea into the Papuan Gulf. Above tidal influence —that is, nearly two hundred miles from the mouth—it is a fine river, six hundred yards wide and with an average depth of thirty-nine feet.[1] A new-comer first seeing the river in this section would be struck by its appearance and possibilities. Here, too, the banks are clothed with rich

[1] 81, pp. 49–50.

vegetation and the D'Albertis creeper falls from tree-top to river in a cascade of scarlet flowers.

But when we come to the estuary, sprawling out along a front of forty miles into the Coral Sea, the contrast could hardly be more marked. Surely this must be the least prepossessing mouth of any river of similar size. The coast throughout the whole length is low, muddy, and overgrown with thickets of mangrove and nipa palm—interesting enough the first time one sees them, but dreary and monotonous to a degree once the novelty has worn off. The river itself is muddy, the shoals on which one so often runs aground are mostly of mud, and the islands lavishly sprinkled along the estuary are simply rather larger mud-heaps upon which vegetation has grown.

Shoals, in fact, form the great problem of navigation in this region. They are constantly shifting and a chart is of little use. In spite of the great width of the estuary there are but few channels where a boat can enter, and at times navigation is further complicated by the heavy seas that beat in from the south-east. During the season of the south-east monsoon (from April to October) rough weather in the estuary is normal. There is little shelter, and a few days' buffeting about in a small boat would come as a revelation to those to whom the phrase ' tropic seas ' calls up visions of placid blueness, wafted perfumes, and glittering sands. Picture instead a small launch ; two or three people huddled together on the roof of its cabin trying to avoid the waves that sweep over the deck, but drenched through nevertheless with spray. Grey skies, squalls of rain, mud-coloured breakers, dreary swamps of mangrove and nipa palm, and no alternative but to drop anchor lest the boat run aground on a shoal. Certainly the mouth of such a river is its least attractive portion, and on such occasions one longs for the calm, the beauty, and the dignity of the reaches above hidden by this screen of swamp and mud.

The islands of the estuary are for the most part simply

enlarged shoals. The formation of new islands is always in progress. A floating log grounds on a shoal and forms a barrier against which other driftwood accumulates and on which more mud heaps up. The centre of the island of Mibu, to the south of Kiwai Island, is a sand-bank some six hundred acres in extent. This was evidently the kernel around which the rest of the island grew.[1] Even clearer is the case of Abaura, one of the smaller islands. Here the wreckage of an ancient ship was found deeply embedded in the centre, leaving no doubt as to the manner in which the island was formed.[2] The natives evidently have an idea of how these islands grow. There is a Kiwai legend to the effect that Kiwai Island was once a small sand-bank which gradually increased in size until trees and other vegetation appeared upon it.[3]

Quickly as these islands are formed, they may as quickly disappear. The shifting of a current may be all that is necessary. At the village of Ipisia, on the south-west of Kiwai Island, the soil is being washed away very rapidly. Out in the river can be seen isolated clumps of soil, held together by the roots of coco-nut palms or mangroves. These have been torn from the island and are in process of dissolution by the waves. This rapid disintegration, in fact, necessitates a frequent moving back of the villages, and in all the islands of the estuary there is only one village, Parama, that occupies the same site that it did a dozen years ago. Some have moved back three or four times.[4] The people of Sumai, on Kiwai Island, have recently abandoned their struggle against the river and have removed their village to its right bank.[5]

The vegetation of this delta country is more interesting than at first sight appears, though one needs to land and examine it. But landing is a problem. If the tide is low there may be half a mile of mud to wade through—mud, moreover, of a peculiarly glutinous nature into which one

[1] 2, p. 131. [2] 2, p. 132. [3] 16, p. 108.
[4] 36, p. 23. [5] 36, p. 26.

sinks thigh-deep. When this difficulty is surmounted the belt of nipa palm and mangrove is frequently found to be quite narrow, and inland of this, on the firmer ground, a greater variety of plants usually thrive. A striking contrast, too, exists between the wind-swept reaches of the estuary—that is, of course, during the south-east monsoon—and the breathless, oppressive stillness of the 'bush' within. The warm, humid atmosphere affords almost ideal conditions for plant-growth, and the natives have understood how to take advantage of this, as we shall see shortly when we refer to their gardens.

The most important plant of this region is undoubtedly the sago palm, which grows wild in great abundance on the islands as well as on the mainland, and is also cultivated. This palm, as is well known, inhabits the damper parts of the islands and mainland of south-east Asia and seems to thrive best along river banks and on marshy lowlands. Here, then, we have one fairly obvious reason why low-lying, unattractive swamps such as those of the Fly River Delta are often preferred by the natives to higher and more healthy regions. Such areas offer from the outset a standing food supply, which may be supplemented—as we shall see later—by a certain amount of animal food. A full-grown palm should contain enough sago for a family of five for nearly a month,[1] to say nothing of esteemed titbits in the shape of large grubs, the larvae of a certain beetle, which are found in the decaying bases of old palms. Nor should we forget that this palm furnishes building, fencing, and roofing materials, sago-washing troughs, and fuel in an easily accessible and workable form.

Hardly less important is the coco-nut palm, which grows here mostly along the coast or not far from it; and in addition the natives cultivate bananas, taro, yams, and sweet potatoes. The native cultivation is, indeed, interesting. The fertile alluvial soil and prevalent moisture

[1] Actually the yield varies from about four to eight hundredweight per trunk.

encourage rank growth. Lush plants like the taro and sugar-cane thrive in the same luxuriant fashion as their wild brethren. In some cases it is difficult at a casual glance to distinguish the cultivated from the wild, and though there are gardens which are more orderly [1] one can often imagine, in the riotous confusion, that one discerns a very early and primitive stage in a particular kind of tropical agriculture, viz. the selection and special encouragement by human kind of certain natural plants of the wet jungle.

Unlike the plant life, the animals of this area are neither numerous nor varied, nor do they belong to a high order. Like Australia, New Guinea was separated from the land masses to the north while marsupials were still the highest mammals. If we except the pig and the dog, which were introduced later, these natives have no experience of higher types of animals except rats and mice ; and this fact, as in the case of the Australians also, is often held partly to account for their general backwardness. Birds, of course, are more independent of land bridges, and the Fly River Delta has many beautiful kinds, amongst them the birds of paradise, the imperial pigeon and the white heron. A company of these herons perched like great white flowers on the branches of a dead tree amidst a sea of dark-green foliage and backed by a sapphire sky is a sight rare and not easily forgotten.

On the whole, however, the denizens of the waters are more important from the human point of view than the land creatures. Sharks infest the seas, whilst crocodiles are the scourge of the river, estuary, and sea-shore. The turtles, of which the Fly River boasts a unique species,[2] are hunted at certain seasons by the natives, and fish and crabs also add variety to the food supply.

* * * * *

[1] *Vide* p. 71 *infra*.

[2] *Carretochelys insculpta* differs from other turtles in possessing three claws on each foot and in the structure of its shell.

In the estuary of the Fly River, as will be readily appreciated from the above description, one island is very like another. If, then, we select Kiwai—the largest and most important of all the islands—as the scene of our special study, it is because we may safely regard it as typical.

About thirty miles long and two and a half miles broad, its longer axis roughly parallel to the direction of the current, Kiwai Island is a low-lying and swampy mud-bank intersected by innumerable creeks. There is little timber worthy of the name, most of the interior bring occupied by wild sago palms and scrubby undergrowth. So numerous are the creeks that each village is seamed by two or three. They are spanned by bridges composed of thin poles resting loosely on piles or trestle framework. These bridges, as may be imagined, are anything but stable, and crossing them is a somewhat trying experience. At low tide a slip will precipitate one into mud several feet deep, whilst when the tide is up there are ' plenty aligators ',[1] as a native once encouragingly reminded me as I was going gingerly across.

The inhabitants of Kiwai Island are true Papuans—that is to say, they are the original inhabitants of the land as distinct from the Papuo-Melanesian immigrants from Melanesia who have settled along the east and north coasts of Papua. The Kiwai Islanders are long-limbed, woolly-haired, and very dark chocolate-brown in colour. High-arched noses are not uncommon. This feature, in fact, is so striking that people have been known to regard them as one of the ' lost Ten Tribes '.

We regret to say that they enjoy a somewhat evil reputation. This is partly due to their exceedingly short tempers. It is hardly possible to spend a couple of nights in a Kiwai village without being awakened by a disturbance, and this usually results in some one being wounded. A Kiwai man will kill another for a most trifling cause—annoyance at the mosquitoes is sufficient.

[1] Here, as in Australia, the crocodile is popularly called ' alligator '.

In view of this it is not surprising that this island is split into a large number of factions, each represented by a village. The men in general have a reputation as fighters and were formerly head-hunters. They used to make frequent head-hunting raids, and their continual attacks on the more peaceable inhabitants of the right bank of the Fly River caused these finally to migrate twenty or thirty miles westwards and to found new settlements at Daru, Turituri, and Mawatta.

The staple food of these people, as of most of the neighbouring tribes, is sago. As we have already remarked, the palms grow wild in great abundance, and are also cultivated. Men cut down the palm and split the trunk, whilst the rest of the work is done by women. The stringy pith is removed by beating it with a special implement (like a large adze). Water is poured on the mass, which is then kneaded. The resulting liquid is allowed to pass through a strainer into a trough where the sediment of starch sinks to the bottom and forms the sago which these people eat.

Mention was made above [1] of the native gardens. In Kiwai Island these are made and tended with great care, and are fenced off to protect them from wild pigs. Gardening bulks so largely in the daily life of the people that the children are brought up to believe that to make a good garden, to fence it well, and attend to its weeding is the most important thing in life.[2] It is said that children are deliberately scared and terrified by stories of evil spirits, so as to render them more obedient. The thought that such spirits are always on the prowl keeps them close to their parents' sides and makes them more inclined to help in the gardens. By this, of course, the parents profit, and also by the knowledge that their children are unlikely at any time to stray far from home.[3]

To one accustomed to the status of women at home it comes as rather a shock to meet a native couple returning

[1] *Vide* p. 69 *supra*. [2] 36, p. 35. [3] 36, p. 36.

from their garden, the woman carrying vegetables for the evening meal, a bundle of firewood, and frequently a baby as well, whilst her lord and master stalks on ahead with only his bow and arrows. Before passing judgement, however, it is well to remember that these people are only just emerging from a state of affairs in which warfare was chronic and when a head-hunting enemy might appear at any moment. Were the man's hands not free and his mind alert, both he and his family would fall easy victims to an attack. The woman, moreover, would feel decidedly injured if the man were to share her load—the difference between ' man's work ' and ' woman's work ' being observed to a nicety.

It will be obvious from the above that these people are in the main vegetable-eaters, though their diet is varied by occasional fish, shell-fish and, in the right season, turtle. They are also—or rather were—cannibals, and it may not be out of place, in passing, to note the possible origin of this custom amongst them. Amongst some peoples cannibalism is supposed to be due to a craving for flesh food induced by a diet almost wholly vegetarian. In other cases, such as those of certain West African tribes, the superfluity of human beings has been suggested as a reason. Be this as it may, it is doubtful if the people of Kiwai Island were ever cannibals in the sense that they ate human flesh for food, though they undoubtedly did partake of it ceremonially. Thus, for example, they were in the habit of eating certain portions of their slain enemies in order to become stronger and braver.

The houses of Kiwai Island, like those of the rest of the estuary, are, usually, of the long type. A clan, a number of clans, or even a whole community may be accommodated in one such house, which is anything up to four hundred feet long, or occasionally even longer. These houses are built on piles and are divided inside into a number of compartments on either side of a central gangway, each of which has its own hearth and each being occupied by one

family. The main doors, used by the men, are at either end, whilst the woman and children use smaller doors at the side.

* * * * *

Turning now to the string figures, we find that here, as elsewhere, they correspond with the occupations and interests of the natives. Thus among the Kiwai Island figures we find 'Men going to make a Garden', 'Sago', 'Banana', 'a Coco-nut Palm', a 'Pig Trap'[1]—all obviously denoting the cultivator, and forming a striking contrast with those of the Eskimos, for example, where the animal figures strongly predominate. Kiwai 'cat's cradles', however, are not limited to such agricultural subjects; there are also animal figures, such as those representing an Eel, Cray-fish, Crocodile, Turtle, Crab and Fishes,[2] all common enough objects, as we have seen, in the estuary. Here again we may perhaps contrast the magnificent Caribou, Musk-Ox, Polar Bears and Whales of the Eskimos, even as the muddy, swampy Fly River estuary is contrasted with the rolling Arctic prairies.

The importance of agricultural pursuits among the Kiwai islanders may be fairly accurately gauged by the fact that nearly a quarter of the total number of their recorded string figures represent plants or are in some way connected with gardening. A similar observation has been made with regard to their decorative art,[3] in which there are a large number of plant designs. Even more noticeable is the disproportionate number of plant totems as compared with the animal totems which usually predominate elsewhere. Dr. Haddon suggests that in certain instances the decorative art is influenced by totemism. Is it possible that a similar influence had been operative in producing such a large number of string figures representing plants? However this may be, figures of this description form an

[1] *Vide* pp. 78 f. *infra*. [2] Mostly unpublished. [3] **16**, p. 102.

interesting group, the details of which repay a little examination.

We have referred to a string figure—' Men going to make a Garden.' [1] This, it should be noticed, is precisely what does happen. It is the men who make the garden. They cut down the trees, clear the ground, and make the fences, while the woman for the most part do the work of planting and tending. This is a division of labour, in fact, which is common all over the world among primitive peoples. There seems to be a general idea that as woman can bear and rear children she is also able to make plants grow.

One of the difficulties connected with a garden is to keep the wild pigs from breaking into it. To prevent this, fences have to be erected and pig traps set up. One string figure [2] is an admirable representation of a ' dead fall ' trap, the roof of which falls on and crushes the pig, after which it is cut up by the natives.

But wild pigs are not the only menace to native gardens. We have a representation in string of a thief looking over a fence [3] and jumping down when he is observed. The technique of this figure is poor, but it is noteworthy from the human point of view to find that this thief escapes. The same thing happens in another figure very widely spread in Papua and called either a ' Thief ' or an ' Eel '—ideas evidently associated there as elsewhere. It is interesting to contrast the fate of these Papuan thieves with that of the British thief, also represented in string.[4] This unfortunate, for stealing a paltry bunch of tallow dips, is arrested, handcuffed, and hanged.

Mention has been made of pigs. These were introduced by man in very early days and have since run wild ; but there are, besides, domesticated pigs. These do not differ much in appearance from their wild brethren, but they are often exceedingly tame, and are a much-valued possession, forming the *pièce de résistance* at most feasts. There is a

[1] *Vide* p. 78 *infra*.
[2] *Vide* p. 83 *infra*.
[3] *Vide* p. 86 *infra*.
[4] 19, p. 74.

string figure which must be dear to the native's heart [1]: it shows a row of little pigs followed by their mother, and as many little pigs as are desired can be made.

Sago, as we have seen, is the staple article of diet of these people. It is therefore not surprising to find three string figures which show the rolling of sago into balls in preparation for eating.[2] One of these is the same figure as the Cape York 'Scrub Hen',[3] the preliminary movements in this case being called 'kneading the sago', whilst the final stage shows two sago balls. This is an interesting example of the different interpretation of the same figure by different peoples.

Many native ceremonials are accompanied by dancing, in which, as so often amongst primitive peoples, the men alone participate. It is only on rare occasions that women appear in ceremonials. For these dances the men paint themselves and don remarkable head-dresses, some consisting of the plumes of the Reggiana bird of paradise. These waving plumes are indicated in the string figure representing a man dancing.[4]

There is no good representation in string of the double outrigger canoes characteristic of Kiwai Island and of the Fly River Delta as a whole. The figure called the nest of the ti-bird in Torres Straits or a 'well' [5] in the Loyalty Islands is here, as elsewhere in Papua, known as a 'canoe', and shows the simple hollowed-out log still in use on the river, and even in rougher water. The omission referred to is the more puzzling because in New Caledonia there is a string figure representing a canoe with a single outrigger.[6]

The Kiwai people appear to regard 'cat's cradles', for the most part, as a game, though they may also have a magical significance.[7] For instance, the right season for playing this game is when the shoots of the yams first

[1] *Vide* p. 87 *infra*. [2] *Vide* p. 88 *infra*. [3] *Vide* p. 107 *infra*.
[4] 27, p. 228. [5] 19, p. 17.
[6] 3, p. 210. [7] 27, p. 221.

appear above ground. Sticks are placed in the earth for the yams to twine round and the first few shoots are tied to the sticks with 'cat's cradle' strings. It is sufficient, however, simply to hang some of these strings on the sticks, or even to throw a few into the garden. In any case, the significance is fairly obvious: the yam stems are magically encouraged to twine round the sticks by the strings that have been twined round people's fingers. A similar magical practice is described by Jenness [1] from Goodenough Island, one of the D'Entrecasteaux group at the extreme south-east of New Guinea.

There is also a time when 'cat's cradles' may not be made,[2] which is at the commencement of the turtle-fishing season. This rule is still strictly observed in the coastal villages and to break it would be to bring misfortune upon the turtle fishers, for the danger of getting entangled in the harpoon lines and dragged out to sea is very real. This is an interesting parallel with the ban formerly placed by the Eskimos upon the making of string figures during the summer months and also upon the making of them at any time by youths and men who go fishing.[3]

Amongst women the period of pregnancy is hedged in by many taboos, and in parts of New Guinea the making of string figures is included in such taboos. This practice has not actually been recorded from Kiwai Island, but its occurrence there also is probable.

Mention has been made above of the large number of folk-tales in vogue among the people of Kiwai Island, and in at least one case there is known to be a string figure of one of the heroes.

There is a series of tales concerning one Sido, a kind of demigod, who was born from the earth in the north-west of Kiwai Island. In one of these stories it is told how his wife ran away to another man, Méuri, at Dibiri. Sido followed her and fought with Méuri. In the course of this fight Sido was killed and so became the first man to die.

[1] **24**, p. 300. [2] **36**, p. 163. [3] *Vide* p. 20 *supra*.

His spirit went west to Adiri, the extreme western border of the world, where the sun and moon set.[1]

The string figure we have referred to does not, as we might expect, represent Sido, but Méuri, the man who first brought death into the world, and it has a number of stages all concerned with this mythical being. One stage shows Méuri's children, 'a pig and a dog'—the two animals which are most useful to the native and both of which, it will be remembered, have been introduced by man. Another point of interest lies in the fact that the final stage is the same as one described by Jenness [2] (which is, however, made slightly differently) and called *Fakale'a*. It would be interesting to know if this individual is also the hero of a folk tale.

As among the Australians,[3] the moon is here regarded as a man, and a very charming string figure [4] shows him with a star on either side—his two wives.

[1] **28**, pp. 101–13. [2] **24**, p. 320. [3] *Vide* p. 101 *infra*.
[4] *Vide* p. 91 *infra*.

19. A Path (*Gabo*)

Opening A.—Release the thumbs and pass them from the proximal side into the little finger loops. Pick up the

FIG. 19

radial little finger and ulnar thumb strings and return. Release index fingers and pindiki.

This represents an empty path (*muru gabo*).

[Release the thumbs and pass them proximal to the little finger loops and into the index loops from the proximal side. Turn them down away from you and then up towards you, thus picking up the ulnar index strings. Release index fingers. Pick up the radial little finger strings with the thumbs from the proximal side, and pindiki.]

This represents two men going along the path to make a garden.

Repeat the part in brackets and four men appear.

Repeat as often as you please.

Release the index fingers. Take the two left radial thumb strings in the mouth and release the left hand. Place the left little finger and thumb tip to tip with those

of the right hand and slip the loops on to them. Take the mouth strings between the left thumb and index finger and, turning them over, place them on the right thumb and little finger in the opposite direction to that in which they

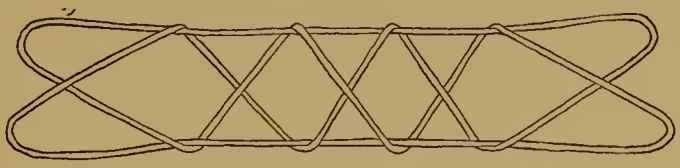

FIG. 19A.—FOUR MEN GOING TO MAKE A GARDEN

were on the left hand, but the ulnar little finger string must still run straight across. Pindiki, and then men are seen returning from their gardens.

Repeat the part in brackets, and the men return until the path is again empty.

20. A Coco-nut Palm (*Urap*)

Opening A.—Pass the index fingers down between the ulnar index and radial little finger strings and pick up both strings of the little finger loop on their backs. Do not release little fingers. Bend the index fingers from the distal side into the thumb loops and pick up the radial thumb string on their backs. Release thumbs.

Twist the index fingers down away from you and up towards you. Bend the index fingers into the little finger loops from the distal side and turn them up towards you, picking up the radial little finger string.

Pass the thumbs proximal to the two distal radial index strings and draw them out. Release little fingers.

Pass the little fingers from the proximal side into the index loops and pick up the two proximal ulnar index strings. Release index fingers. Pindiki the radial little finger string.

There is now a loose string (the ulnar thumb string) across the centre of the figure on the radial (proximal) side. Pull this through the lower central triangle to the ulnar (distal) side, place it on the toe and draw out.

Release the thumbs and little fingers and extend. The index fingers must be turned so that the string running straight across comes at the top of the figure, and the index loops should be extended by placing the little fingers in them.

This represents the coco-nut palm.

FIG. 20

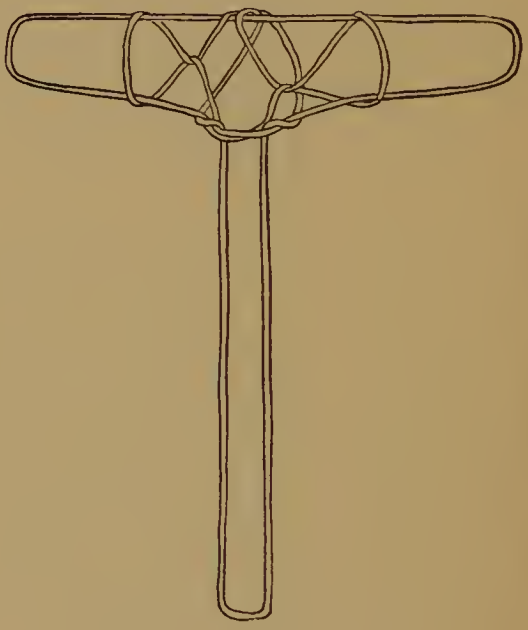

FIG. 20A.—A COCO-NUT PALM

To make the central shoot of the tree, lay the strings on the leg, release the hands, pick up the straight upper string on either side of the central triangle, and extend.

To undo, release the toe, and pass its loop towards you through the centre of the figure and draw out.

21. A Banana Plant (*Sime*)

Opening A.—Pass the index fingers away from you distal to all the strings, then bend them down towards you

FIG. 21

proximal to the little finger and index loops and into the thumb loops from the distal side. Turn them down away from you and return, thus picking up the ulnar thumb strings. Release the thumbs.

Bend the index fingers down into the little finger loops and turn them up towards you, thus picking up the radial little finger strings.

Pass the thumbs into the index loops from the proximal side and draw out the two radial index strings. Release the little fingers.

There are now two loops encircling the ulnar index string that runs straight across. Pass the little fingers distal to the index strings and into their respective loops from the proximal side, thus picking them up, but do not pick up the ulnar index string.

Release the index fingers, and pindiki the radial little finger string.

There is now a cross in the centre of the figure. Pick

this up in the mouth. Release the index fingers and pick up with them from the proximal side their respective upper arms of the cross (i.e. the strings which run to the thumbs). Release the mouth.

Lift off the thumbs the strings running across to the index fingers. Pass the thumbs distal to the index loops and pick up the radial little finger string from the proximal side. Pindiki.

This represents a banana plant.

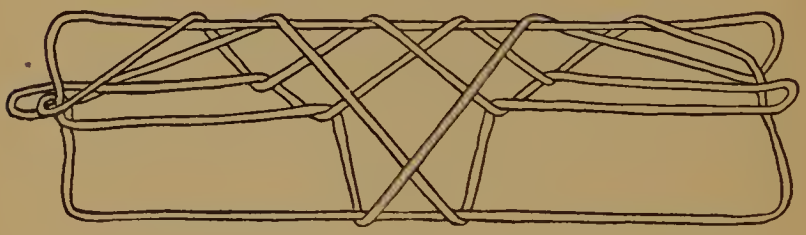

FIG. 21A.—A BANANA PLANT

Release the index fingers and pindiki.

Take in the mouth the two (crossed) strings on the near side of the figure. Release index fingers and draw out gently.

Pindiki repeatedly, to imitate the spitting out of fruit that is ' no good ' (*ubasime*).

22. A Pig Trap (*Boromo*)

Opening A.—Take the radial cross, draw it away from you proximal to the ulnar cross and distal to the ulnar little

FIG. 22

finger string, and place it on the toe. Release little fingers and draw tight.

Pass the little fingers distal to the index loops and pick up the ulnar thumb strings from the proximal side.

Exchange the index loops, passing the right through the left.

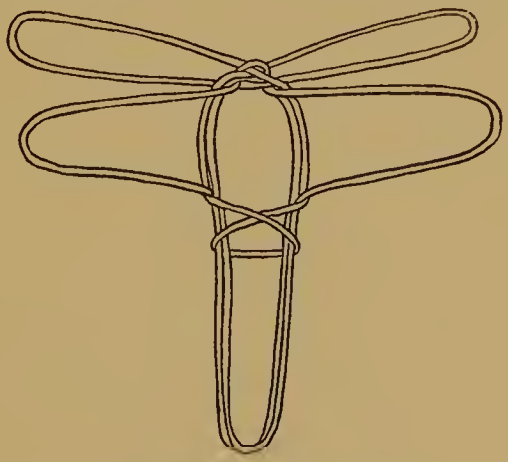

FIG. 22A.—THE PIG TRAP

Pick up the radial index strings with the thumbs from the proximal side, and Navaho thumbs. Release the index fingers and draw tight.

The circle in the centre represents the pig.

Release the thumbs without drawing tight. Place the little finger loops on the hands in *Position* 1, and extend.

This represents the fall of the trap (= *di*). The loose strings lying on the foot are the dead pig.

Do *Opening A*, but do not pull tight the loose strings which represent the pig.

Pick up the radial index strings with the thumbs from the proximal side, and Navaho the thumbs.

Pick up the ulnar index strings with the little fingers from the proximal side and Navaho the little fingers. Release the index fingers.

Move the hands up and down to imitate the cutting up of the pig (= *osiuti boromo*), which gradually disappears as the strings are drawn tight.

23. A Fly-river Turtle (*Uwa*)[1]

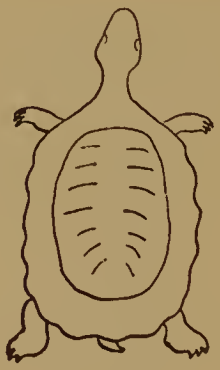

FIG. 23

Opening A.—Close together the fingers of each hand and pass them from the distal side into the thumb loop; then

[1] In Cape York Peninsula this figure is known as 'A Full Moon'. **18**, p. 130.

turn them up so that the radial thumb string passes to the ulnar side of the hand.

Pass the thumbs proximal to the radial string (that comes from the back of the hand, and is the original ulnar thumb string), and allow this loop to slip on to the wrist.

Pass the thumbs towards you, then away proximal to the wrist loop, but distal to the ulnar little finger string. Catch this string on the backs of the thumbs and return. Release little fingers.

Pass the little fingers distal to the index loops and pick up the ulnar thumb string from the proximal side.

Exchange the index loops, passing the right through the left.

Pass the middle fingers from the distal side through the index loops and pick up the ulnar thumb strings from the proximal side.

Release the thumbs and index fingers, and then the little fingers, and extend.

The turtle (*Carretochelys insculpta*) is peculiar to this region.[1]

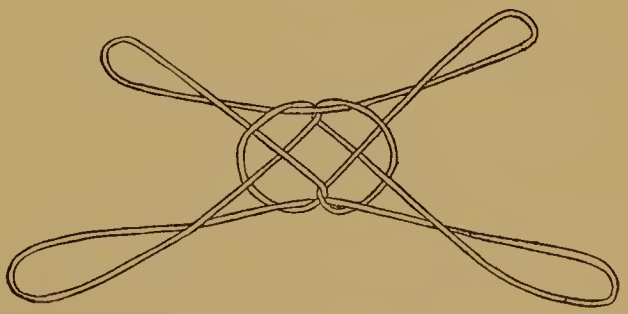

FIG. 23A.—FLY-RIVER TURTLE

[1] *Vide* p. 69 *supra*.

24. A Thief (*Orowa*)

Position 1.—Pick up the left palmar string from the proximal side with the right index finger. Twist once, clockwise (i.e. away from you).

Pick up the right palmar string from the proximal side with the left index finger through the right index loop. Do not twist.

Release the right index finger and draw very tight. Release the right hand. Take the left thumb loop in the right hand, release the left index finger, and take the left little finger loop in the left hand.

The loop that stands up (the left index loop) represents the thief looking over the fence of the garden in which he is about to steal. Pull the strings tight, and the man, seeing he is discovered, jumps down.

FIG. 24

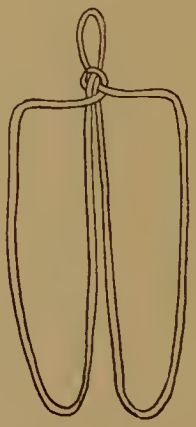

FIG. 24A.—THE THIEF

25. Pigs (*Boroma*)

Opening A.—Place the left thumb, index, and little finger loops on the toe. Release the right index and pull tight.

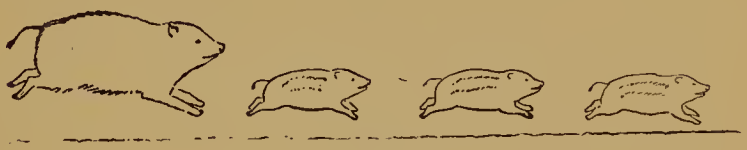

FIG. 25

* Pick up the radial little finger string with the right thumb from the proximal side and the ulnar thumb string with the right index finger from the proximal side.

Pass the left thumb and index through the right thumb-index loop from the distal side and lift off the little finger loop. Draw this loop out through the large one, and replace it on the little finger. Release the right thumb.

Pass the right thumb proximal to the radial little finger string and pick up this and the ulnar index string on its back. Release the index finger and pindiki.

Pass the left little finger into the right thumb-index loop from the distal side and remove this loop from the right hand, then pass the left thumb into the right thumb-little finger loop from the proximal side and remove this loop from the right hand, which is thus released.

Repeat from *, reversing right and left throughout.

Repeat the whole once or twice, ending up with ' release the index finger and pindiki '.

Release the toe, place the loop that was wound round twice on the right (or left) hand in *Position* 1, and with the left (or right) index finger pindiki several times.

This represents a row of little pigs followed by their mother.

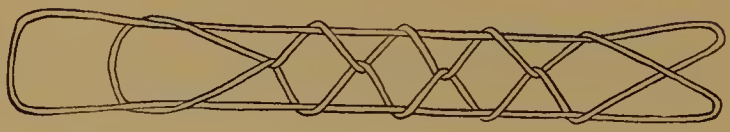

FIG. 25A.—LITTLE PIGS FOLLOWED BY THEIR MOTHER

26. A Sago Ball [1] (*Domo-o*)

Opening A.—Place under the chin all the strings except the radial thumb string which slips under the others. Take this string in the mouth and draw out over the other strings, releasing the chin.

Pass the loop in the mouth under the figure and place on the toe.

Extend the figure and place the middle of the ulnar little finger string over the toe. Release the thumbs.

Release the index fingers without drawing tight. Pass them downwards into the two circles and pick up on their backs the segments of the circles nearest the toe.

Exchange the index loops, passing the left through the right. Release toe and extend.

This figure shows a ball of sago.

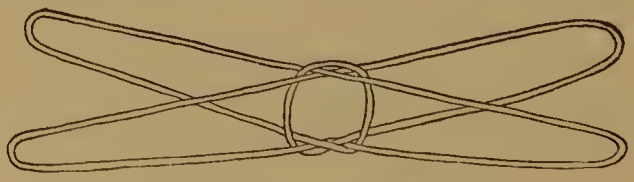

FIG. 26.—A SAGO BALL

[1] Figured by Roth from North Queensland (a hole in a tree). **88**, IX, 1.

27. Méuri

Hold part of the string between the thumbs and index fingers, the hands being about six inches apart. Make a small loop by bringing the right hand towards you and to the left. Hold the loop between the thumbs and index fingers, so that the loop hangs down, and pass both index fingers towards you through both loops. Draw the hands apart and turn the index fingers up.

Pass the left thumb between the two radial index strings and pick up the proximal ulnar string from the proximal side, then pass the thumb distal to the distal radial string and pick up the distal ulnar string from the proximal side.

Pass the right thumb between the two radial index strings and pick up the two ulnar strings from the proximal side.

Pass the little fingers distal to the distal radial index strings and pick up the proximal radial index string from the proximal side.

Pindiki the oblique string of the little finger triangles.

Release the thumbs, throw the loose string over the figure, and catch it on the toe.

Pass the thumbs away from you through the inverted lateral triangles of the figure, and, passing them outside the toe strings, pick up the toe strings on their backs and return through the triangles. Release the toe.

Remove the two distal index loops.

This stage represents Méuri as a young man.

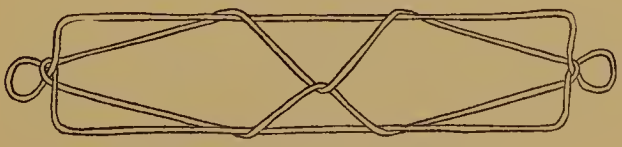

FIG. 27.—MÉURI AS A YOUNG MAN

Pass the index fingers into the spaces at the bases of the little fingers and turn them up towards you, picking up the two strings. Release thumbs.

Passing the thumbs over the strings just released, and away from you proximal to the two ulnar index strings, pick them up with the thumbs and return, releasing these strings from the index fingers. Pindiki.

This stage represents Méuri's big stomach.

1. Release the thumbs and pass them from the proximal side into the little finger triangles and pick up the oblique string, then from the distal side into the index finger triangles and release the distal index loops. Pindiki.

This represents Méuri looking up.

2. Release the little fingers and transfer the distal index loops to the little fingers. Pindiki.

This represents Méuri looking down.

Repeat 1—Méuri's two children, a pig, and a dog.

Repeat 2 and 1—and release thumbs—Méuri himself.

FIG. 27A.—MÉURI

Lift up as high as possible the oblique strings of the little finger triangles with the thumbs.

This represents Méuri standing up.[1]

To undo, release thumbs and little fingers.

[1] Cf. **24**, No. XXXVI, '*Fakale'a*'.

28. The Moon (*Sagana*)

Opening A.—Pass the thumbs distal to the index loops and pick up the radial little finger strings from the proximal side.

FIG. 28

Pass the middle fingers distal to the index loops and pick up the ulnar thumb strings from the proximal side. Release thumbs.

Pass the thumbs distal to the radial index string but proximal to all the other strings. Pick up the ulnar little finger string on their backs and return. Release little fingers.

Pass the little fingers distal to the ulnar middle finger string and pick up the radial middle finger string from the proximal side.

Bend the index fingers into the middle-little finger loops from the distal side ; then pass them proximal to their own loops and up through the thumb loops.

FIG. 28A.—THE MOON AND HIS TWO WIVES

Release the thumbs gently ; then pass them away from you through the loops just released and pick up on their backs the ulnar little finger strings.

Pass the little fingers over the figure ; then pick up on

their backs the upper lateral (single) strings of the central lozenge.

Navaho the little fingers, release the middle and index fingers, and draw out.

Pass the right thumb and index finger proximal to the left thumb loop and take hold of the left ulnar thumb and radial little finger strings. Release the left thumb and place both these strings over it.

Repeat with the other hand and pindiki.

This figure shows the moon with a star on either side—his two wives.[1]

[1] *Vide* p. 77 *supra*

CHAPTER V

CAPE YORK PENINSULA

ALTHOUGH it has always been a region little visited by white people, Cape York Peninsula seems to have been the first part of Australia referred to in authentic written history.[1] The reason for this is not far to seek. As the most northerly portion of Australia the peninsula—or, at any rate, its extremity around Cape York—forms the southern side of the most direct passage between the Pacific and the Indian Oceans, and hence early navigators were conscious of its existence even when they were more or less vague as to the extent of the land that lay behind it. Moreover, it was on Possession Island, not far from Cape York, that Captain Cook in 1770 took possession of the whole eastern portion of Australia in the name of King George III, planting his flag on a vein of auriferous quartz.[2] Had he noticed the gold which was visible on the surface, at any rate in 1895, how different might have been the development of Australia. Certainly we may reasonably assume that Cape York Peninsula, instead of remaining one of the least-known and most neglected portions of the continent, would have become the base from which further exploration and development would have proceeded.

The structure of the peninsula is simple. The backbone or dividing ridge lies close to the eastern seaboard and consists of granite rising in places to lofty mountains. Situated well within the tropics and exposed to ocean influences on three sides, the heavy rains, aided by the

[1] 29, I, p. 1.

[2] 29, I, p. 88.

prevailing high temperatures, permit the growth of dense forests wherever the soil is suitable. Interspersed among these forests farther inland are grassy plains and heath, the former now utilized for sheep or cattle. Though from this description the country may not sound very formidable, it is exceedingly difficult in most parts to travel over. Few of the early explorers came through without suffering great hardships and heavy losses in horses, a circumstance, no doubt, which partly accounts for the meagre general knowledge of the region.

One of the worst areas is the so-called 'Wet Desert'.[1] which covers great tracts on the uplands. Here it is permanently wet, and feed for the horses is almost unobtainable. Bogs and swamps with heather and pandanus palm alternate with low ridges so undermined by ants as to be really dangerous. The swamps, too, are full of hidden holes, some so deep that when a horse stumbles into one the rider's head alone is visible. Innumerable creeks intersect the region, but only the largest have any grass along their margin. Unless horses are turned out to forage for themselves they cannot get enough to eat, while, on the other hand, the presence of numerous poisonous plants makes it a risky thing to give them this freedom.

While, however, there are great stretches of dense forest and swamp, there are also large tracts of fine, open park-like country, unrivalled cattle country nowadays, but in former times the range, especially in the scrubbier parts, of numerous wild marsupials and the native tribes that preyed upon them. Another feature somewhat unusual in Australia is the large number of swift rivers which rush down from the rocky ranges to the coasts on both sides. In the rainy season these rivers are liable to sudden and dangerous floods, whilst at all times they are infested by crocodiles. It is fear of these creatures that causes the natives here to cross a river in single file, with an old woman

[1] **29**, II, pp. 585 ff.

bringing up the rear. The theory is that the crocodile will seize the last person, a somewhat novel version of ' the devil take the hindmost '.

Hurricanes and tornadoes are common in this region. Logan Jack [1] mentions one in Temple Bay which broke down or uprooted all the trees in its path, clearing a straight south to north lane about two chains in width. Whirlwinds and waterspouts are also common during the wet season, when thunder-storms are also an almost daily occurrence. To these violent storms are due the sudden floods mentioned above. These floods often give no warning of their advent, as the storm itself may be scores of miles away in the mountains. In a few hours the rivers rise to an amazing extent, and the carcasses of bullocks have been found wedged in the trees forty feet above the ground. It seems likely that it was one of these floods that overwhelmed the explorer Leichhardt when he was making for the Gulf of Carpentaria. At any rate, he and his whole expedition disappeared and no trace of them has ever been found.

Although communication between Cape York Peninsula and New Guinea is still to some extent maintained by a chain of islands, it is extremely probable that in recent geological times there was an actual land bridge, though the evidence on this point is conflicting. There is a distinct affinity between the vegetation of the savannas of the Fly River area of Papua and that of similar savannas of Cape York Peninsula, only about a hundred miles distant. It has also been remarked that if this land bridge existed, it must have done so before the eucalyptus became such a prominent feature in the flora of Australia. Eucalypti in general are but scantily represented in New Guinea, though it is true they are extremely common in the Fly River region. On the whole, it seems that the evidence is in favour of a land connexion, and it is therefore quite possible that prehistoric man walked into Australia,

[1] 29, II, p. 574.

just as he crossed into Tasmania before Bass Strait was formed.

* * * * *

The Australian aborigine has fared somewhat better at the hands of the white man in the northern parts of Australia than in the south and in Tasmania. Certain tribes in the north still live practically in the old way, and in order to understand something of their life it is better to study these natives rather than the natives who are now gathered into reservations.

Long-headed, broad-nosed people of pre-Dravidian stock, they are connected racially with the Vedda and certain Jungle tribes of South India rather than with the neighbouring Papuans and Melanesians.[1] These pre-Dravidians appear to have displaced an earlier woolly-haired people who had come into Australia via New Guinea and who survived until recent times only in Tasmania.

To a casual observer an Australian tribe might appear to be nothing more than a few families, loosely associated, owing obedience to no one, and straying about at random in search of food.[2] Certainly they do roam about in small groups, but each tribe keeps strictly to its own territory. This may be small, but it is well-defined, and any trespass by another tribe is punishable by a retaliatory raid. It was this simple and widespread custom, in fact, that caused a great deal of trouble in early times with the white settlers. When these came they quite naturally shot any game they saw, ignorant or regardless of the fact that they were poaching on the blackfellows' territory and robbing them of their scanty food. The natural, and, from the black's point of view, the lawful, corollary was retaliation by spearing the white men's cattle. This in its turn resulted in the 'cattle-thieves' being shot, the whole sequence forming an instructive example of the inhumanity of power backed by ignorance.

[1] 17, p. 14. [2] 43, p. 142.

Roaming, of course, is necessary for the blacks, since in very few places can they depend on a regular food supply. Their diet has to vary with the seasons, and even the supply of fish is fluctuating. Practically the whole day is occupied with the search for food, and nothing is too small or too mean to find its way into the dilly-bag. Besides the obvious fish, flesh, and fowl they catch snakes, lizards, frogs, grubs, and even white ants. These termites, whose enormous ' hills ', sometimes fifteen feet high, can in places be clearly seen from the sea, are the *pièce de résistance* at many a meal. A fire is built round the heap and the roasted insects can then be picked out like currants from a cake, and if food is scarce the baked clay ' crust ' is sometimes eaten as well.[1]

The black is a famous tracker and a most skilful snarer of birds and animals. It would be hard to imagine anything more ingenious than the Queensland method of catching turkey bustards.[2] A live grasshopper is suspended on a rod to which is also affixed a noose. Holding this as well as a small bush in front of him the hunter, thus partially concealed, creeps cautiously up to the bird, which is fascinated by the movements of the grasshopper. When close enough, the native slips the noose over the bird's head and secures it. Fish, too, are caught in North Queensland not only by spearing or trapping, but by the use of vegetable poisons. Roth mentions thirty-two different kinds of these.[3] The Tully River natives, moreover, have an ingenious method of fishing with a spider's web. They catch a species of large spider and after killing it wind its web on the end of a stick. This they dip into the spider's glutinous silk bag and then bob it on the surface of the water. The fry bite at it, get their jaws entangled, and are hauled out at a great rate.

In spite, however, of their intelligence in these ways, the Australian blacks were still in the Stone Age when the

[1] 37, p. 9. [2] 43, p. 97. [3] 37, pp. 19–20.

white man arrived. Though iron in a readily workable form occurs they made no use of it. Fire they made by friction, using the drill in North Queensland and the saw method farther south.

The lack of domesticated animals, on the other hand, cannot be fairly charged against them. With nothing higher than a marsupial to work with the scope was limited. One could hardly expect to accomplish much with a kangaroo or a duck-billed platypus. But they made no attempt to cultivate the soil, though there were plants, such as the yam, that would well have repaid the efforts of the cultivator. Hunters they were and hunters they remained, and the invention of a hunting weapon so unique and perfect of its kind as the boomerang must never be forgotten when the mentality of the Australian aborigine is in question.

* * * * *

The 'cat's cradles' of the Australian natives have not received the attention they deserve. W. E. Roth [1] has published seventy-four figures from North Queensland, and although he has not described the method of formation, they are of great interest as showing the range of subjects dealt with. While staying at Thursday Island in 1914 I was fortunate enough to come across a Cape York native from whom I learned sixteen figures,[2] one or two of which resemble those illustrated by Roth.

Bearing in mind the hurricanes and thunder-storms referred to above,[3] it is not surprising to find an attempt to portray in string a mass of clouds which dissolves into flashes of lightning.[4] There is also a very clever representation in three dimensions of a waterspout,[5] and Roth gives a drawing of a figure which imitates rain.[6]

[1] **38.** [2] **18.** [3] *Vide* p. 95 *supra*.
[4] *Vide* p. 103 *infra*; and see also **38**, Pl. XI, 1 and 2.
[5] *Vide* p. 104 *infra*. [6] **38**, Pl. XI, 3.

Rain falls almost every day in the wet season. But in the winter there may be droughts, and medicine-men who possess the necessary magic for producing rain are important persons. Roth [1] mentions the sad story of one of these whose magic was too strong and called up a cyclone. The results were so disastrous that its perpetrator had to flee the country. He explained afterwards that he had not meant to make a cyclone, but simply intended to make it wet enough to hinder some natives of another tribe coming over to kill a friend of his. The magic, however, was too strong and the downpour became a cyclone.

Noticeable by its absence is any representation of a dwelling, whether house or tent. The natives, in point of fact, have no houses worthy of the name. Bark huts are erected as shelters from the rain, but they are only temporary refuges. The people, once they have left these shelters, appear never to return to them. A two-storied hut has been described from the Lynd River,[2] but it is used merely as a protection from mosquitoes and it also is quite temporary.

Next to the boomerang the most characteristic idea associated with the Australian blackfellow is, perhaps, the corroboree. These dances play a very important part in the social life of the natives, who assemble from great distances whenever a corroboree is held. No large function is complete without one, and ceremonial dances also form an important item in the initiation of boys. An attempt has been made to imitate the movements of the dancers in string,[3] not a very successful attempt; but the subject is not an easy one.

Much better as a representation of a moving object is the 'Scrub-hen'.[4] A company of these birds (*Megapodius tumulus*) by assidious scraping collect together an enormous heap of leaves in which the hens deposit their eggs. Under

[1] **39**, p. 8.
[2] **29**, II, p. 632.
[3] *Vide* p. 106 *infra*.
[4] *Vide* p. 107 *infra*.

the action of the tropical sun the fermenting leaves make a hotbed of sufficient warmth to hatch the eggs, whereupon the young birds emerge fully fledged and able from the beginning to fend for themselves. In the string figure we see the hens scraping industriously, first in one direction and then in another, and on opening the mound two eggs are found inside.

As regards animals, we should rather expect figures representing them to bulk rather largely in view of the hunting habits of these people. In fact, about one-half of the total number from North Queensland are of this description. Of the animal figures other than the ' Scrub-hen ', none is particularly realistic except the ' Lizard running up a Tree ',[1] and perhaps the ' Turtle ' illustrated by Roth.[2] The ' Two Kangaroos ' [3] rather unexpectedly, almost defy the attempt to trace any likeness. Besides animal figures Roth mentions ten representing plants, all of them plants used for food.

If one was asked to look at the map and to point out the place where external contacts would be most likely to occur and outside influence to make itself felt in Australia, it is Cape York Peninsula that would almost inevitably be chosen. The islanders of Torres Straits are expert canoeists, and they have undoubtedly left their mark in North Queensland. The usual types of canoe in Australia —when such occur at all—are bark canoes and the simple ' dug-out ', neither with an outrigger, as, indeed, may be gathered from several string figures.[4] But in Cape York Peninsula, and nowhere else in Australia, there are found canoes with outriggers, showing the influence of Torres Straits and New Guinea.

Musical instruments, again, can hardly be said to exist among the Australian aborigines. The natives knock sticks together or sometimes slap their bodies with rolls of

[1] *Vide* p. 109 *infra*
[2] **38,** Pl. VII, 1.
[3] *Vide* p. 110 *infra.*
[4] *Vide* p. 105 *infra*, and **38,** Pl. XII, 2, 3, 4.

opossum skin, instead of with their hands, to beat time for dancers, but these rolls can hardly be called musical instruments. At Port Essington, however, there is a nose flute that points to Malayan influence, and in Cape York Peninsula, though nowhere else, the natives have drums with a lizard skin tympanum [1] like the Papuan drums. It is not without interest, therefore, that the native from Cape York Peninsula who taught me 'cat's cradles' showed me one which represents a drum,[2] and this was identical with one, also called a drum, which I learned in the Purari delta in Papua. This, then, may be regarded as a good example of the spread of culture illustrated by string figures.

Up to the present time nothing has been discovered of a possible magical significance of 'cat's cradles' in North Queensland, or, indeed, in Australia anywhere. This does not necessarily mean that there is none. The Australian natives have, of course, numerous folk-stories, many of them connected with the heavenly bodies. The Cape Bedford blacks believe that the moon is a man and has two wives—the summer sun and the winter sun.[3] They also say that at the time of the new moon he is starving and consequently goes on a fishing expedition. Whereupon he eats plentifully, with the result that he becomes quite full! Now, there are also quite a large number of Cape York Peninsula string figures representing the heavenly bodies (four depicting the sun alone); [4] and we may recall here the Kiwai string figure which represents the 'Moon and his Two Wives'.[5] It is thus likely that there is some connexion between the string figures and the folk-lore of the Cape York Peninsula people. The people of Kiwai Island, as we have seen, ascribe magical properties to their string figures, and a similar belief is recorded from Good-enough Island,[6] which is situated to the south-east of New

[1] **43**, p. 126.
[2] *Vide* p. 111 *infra*.
[3] **43**, p. 42.
[4] **38**, Pl. X, 1–4.
[5] *Vide* p. 92 *supra*.
[6] **24**, p. 300.

Guinea. The Australian black's belief in magic is very strong and real, and it would be very interesting to know whether in this respect also he has customs in common with his northern neighbours.

29. Lightning [1] (*Untemo*)

Opening A.—Pass the mouth proximal to the radial thumb string, distal to the radial cross, proximal to the ulnar cross, and catch hold of the ulnar little finger string. Draw this out, pass it under the figure, and place it on the toe.

Pass the thumbs into the index finger loops from the proximal side and pick up the radial strings. Navaho the thumbs and release the index fingers.

Pass the index fingers distal to the ulnar thumb strings; then bend them downwards and into the little finger loops from the distal side and turn them up towards you, thus picking up the radial little finger strings. Release the thumbs.

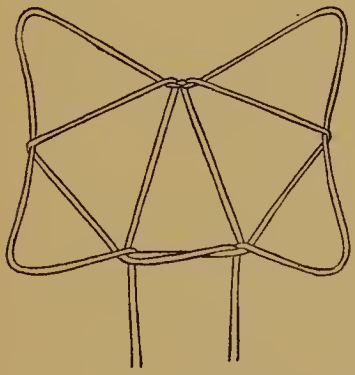

FIG. 29.—A THUNDER-CLOUD

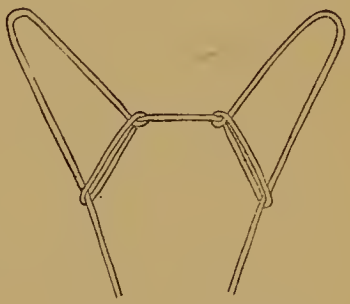

FIG. 29A.—LIGHTNING

Pick up the ulnar index string with the thumbs from the proximal side. Release the index fingers.

This represents a thunder-cloud. Release the little fingers, pull tight sharply, and the lightning will flash out.

[1] 18, p. 130.

30. A Waterspout [1] (*Mare*)

Hold the string between the thumbs and index fingers—the hands being about six inches apart—and make a loop

FIG. 30

by bringing the right hand towards you and towards the left. Hold the strings between the thumbs and index fingers so that both the loops hang down, and pass the index fingers towards you through both loops.

Draw the hands apart and turn the fingers up.

Pass the right thumb distal to the proximal radial index string and pick up the proximal ulnar string on its back.

Pass the left thumb distal to the proximal index loop and pick up the distal ulnar string on its back.

Pass the little fingers distal to the distal index loop and pick up the proximal radial index string on their backs.

Bend the index fingers into the two triangles in the centre of the figure, and, turning them up towards you, pick up on their tips the straight median string.

Release the thumbs, then pass them into the little finger

[1] 18, p. 132.

loops from the proximal side and pick up on their backs the oblique string (which runs straight across).

This stage forms a canoe (*auto*), and is figured by Roth.[1]

Pass the thumbs distal to the oblique strings crossing the index loops, then, letting their own loops slip off, pull these strings down and pass the thumbs to the palmar side of the palmar string. Pick this string up on their backs and return through their original loops.

Release the little fingers, then pass them distal to the ulnar index string, and pick up from the proximal side the radial index string (that runs straight across).

Pindiki the ulnar index string and extend, by separating the thumbs and index fingers, so that the radial thumb

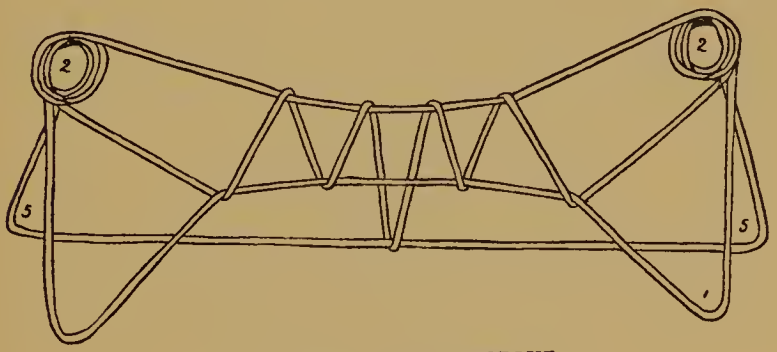

FIG. 30A.—A WATERSPOUT

string and the ulnar index finger string are parallel and in a plane at right angles to the rest of the figure. The whole then makes quite a good representation of a waterspout.

[1] 38, Pl. XII, 2.

31. A Corroboree [1] (*Ewite*)

Opening A.—Place the big toe across the centre of all the strings.

FIG. 31

With the left thumb and index finger draw out the right ulnar thumb string proximal to the radial thumb string. Pass the digits through this loop proximally, and, passing them distal to the right thumb loop, draw out the radial index string. Repeat with the ulnar index and radial and

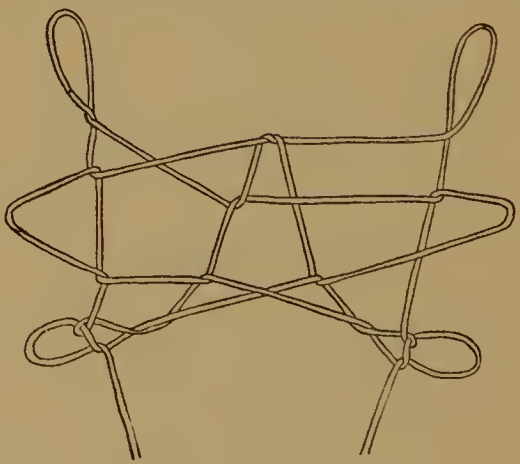

FIG. 31A.—A CORROBOREE

ulnar little finger strings in turn. Release the little finger and place the last loop on it.

Repeat with the other hand.

[1] 18, p. 129.

Release the toe, then place the ulnar little finger string in the centre of the figure, over the toe.

Rotate the hands from side to side, to imitate the movements of the dance.

32. The Scrub-hen [1] (*Etanga*)

Position 1 *on the left hand.*—Pass the right hand between the two pendent strings, and separate the thumb and the

FIG. 32

little finger widely, thus picking up on them the left thumb and little finger strings respectively, and draw out.

Release the left hand and repeat this movement with it.

Pass the thumbs proximal to the radial little finger string and pick it up.

Pass the little fingers proximal to the ulnar thumb string and pick it up.

Do *Opening A* with the single palmar string.

Pass the single radial thumb string distal to the rest and place it over the toe. Slip the thumbs out of this string.

Release the little fingers, transfer the index loops to the thumbs, and place this double loop over the hands in *Position* 1.

[1] **18**, p. 135, and p. 99 *supra*.

Move the hands towards and away from you to imitate the bird scratching together its mound.

Take the loop off the hands and rotate it through 180° clockwise, and replace it in *Position* 1, so that the ulnar

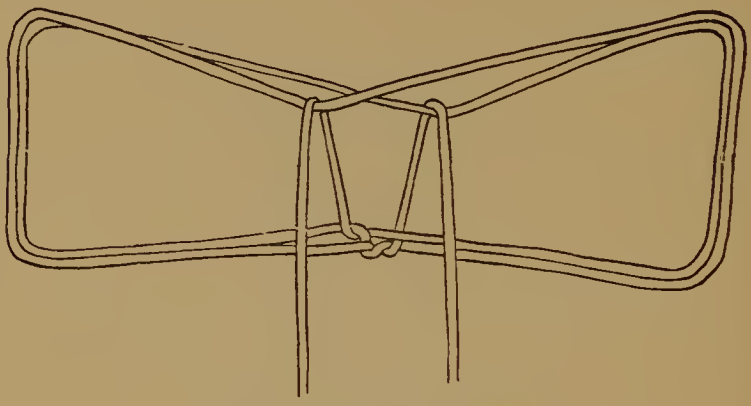

FIG. 32A.—THE SCRUB-HEN

little finger strings are still ulnar but lie over instead of under the toe strings.

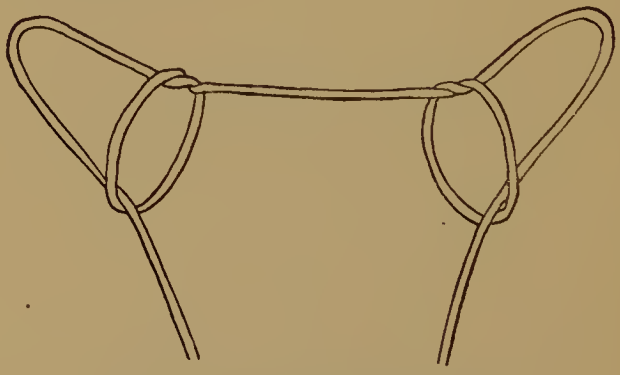

FIG. 32B.—THE SCRUB-HEN'S EGGS

Again imitate the bird scratching.

Release the thumbs and lay the figure down with the little finger strings nearest to you.

Pick up on the index fingers their respective toe strings in the centre of the figure and draw out.

This represents the two eggs laid by the scrub-hen.

33. A Lizard [1] (*Yawundi*)

Opening A.—Pass the radial string over the rest and place it on the toe.

FIG. 33

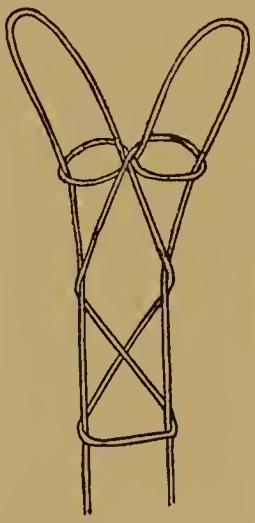

FIG. 33A.—THE LIZARD

Exchange the index loops, passing the right through the left.

Pass the middle fingers through the index loops from the distal side and pick up the ulnar thumb strings on their backs, returning through the index loops.

Release the thumbs, index, and little fingers and draw out, when the lizard will run up a tree.

[1] 18, p. 132.

34. Two Kangaroos [1] (*Apo*)

Opening A.—Place the left index loop on the big toe (passing it distal to the little finger loop) and release both index fingers.

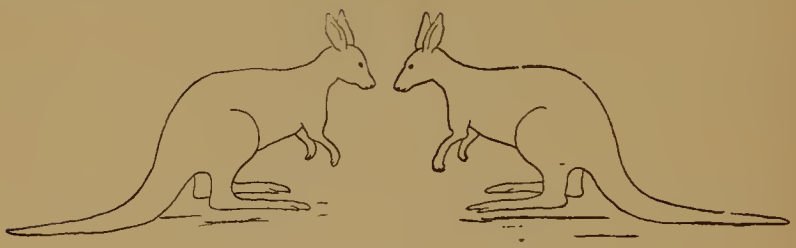

FIG. 34

Pass the index fingers away from you, distal to the little finger loops ; then bend them down towards you, proximal to these loops and into the thumb loops from the distal

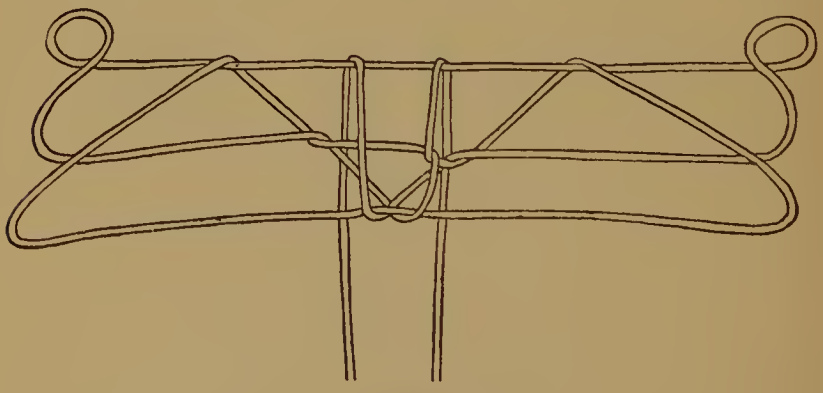

FIG. 34A.—THE KANGAROOS

side. Turn them away from you again and return, picking up the ulnar thumb strings. Release the thumbs.

Transfer the index loops to the thumbs.

[1] **18**, p. 133.

Pick up the radial little finger strings with the thumbs from the proximal side, and pindiki. You have now two kangaroos.

Release the toe and draw the hands apart and the two kangaroos will run away.

35. A Drum [1] (*Aropa*)

Opening A.—Pass the middle fingers into the index loops from the distal side and pick up the radial index and ulnar thumb strings from the proximal side. Release thumbs.

FIG. 35

Pass the thumbs into the little finger loops from the proximal side and pick up the radial little and ulnar index finger strings from the proximal side. Release little fingers.

Pass the little fingers distal to the middle finger loops and pick up the ulnar thumb string from the proximal side. Release thumbs.

Pass the thumbs into the little finger loops from the proximal side and pick up the radial little and ulnar index finger strings from the proximal side. Release little fingers.

Pass the little fingers distal to the middle finger loops and pick up the ulnar thumb string from the proximal side.

[1] **18**, p. 131. This figure represents a drum such as has been introduced from Papua, and is identical with one I collected there. *Vide* p. 101 *supra*.

Bend the index fingers over the palmar strings and into the middle finger loops from the distal side, then turn them up towards you, picking up the (single) radial middle finger string. Release thumbs.

Pass the thumbs proximal to the ulnar little finger string and draw this string towards you ; then pass them from the proximal side into the middle finger loops ; turn them down away from you and then up towards you, thus picking up the two ulnar middle finger strings.

Release all except the thumbs and extend gently.

Pass the little fingers from the proximal side into the thumb loops and pick up on their backs one of the ulnar strings that runs straight across. Pindiki and extend.

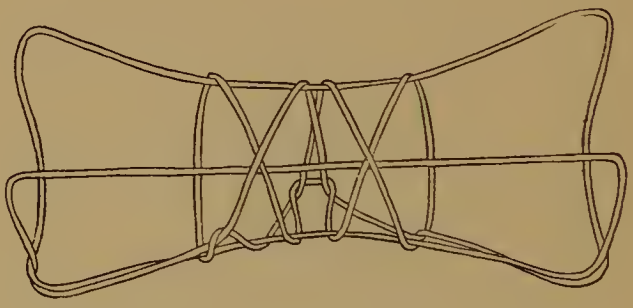

FIG. 35A.—A DRUM

CHAPTER VI

THE GOLD COAST

FOR our fifth and concluding study we may fitly turn to Africa, and in Africa to the Gold Coast. Like Cape York Peninsula and Papua—or those parts of them with which we have been concerned—the Gold Coast is tropical in its general nature and in some respects the similarity holds even in detail. Nevertheless this portion of the African continent is so distinctive and has such a clearly marked character of its own that in dealing with it we need not fear either monotony or reiteration.

Apart from ancient coast-wise explorations—and quite possibly these reach much farther back into antiquity than was formerly supposed—the sea-board of West Africa has been visited regularly by Europeans for some five and a half centuries and more or less durable settlements effected. 'Gold Coast', 'Slave Coast', 'Ivory Coast', 'Spice Coast'—what a store of romance lies behind these names, a romance inseparable from the memory of the great merchant adventurers of the Middle Ages. The long line of castles flanking these shores echoes this romance and the names we have mentioned enshrine it in our maps and in history.

The Gold Coast itself claims but a small portion of the total coast-line of West Africa, from the Tano River on the west to some sixty miles beyond the mouth of the Volta on the east. We shall, however, occasionally refer to a further strip of coastal country. This stretches eastwards around the Bight of Benin, and is roughly described

under the name of ' Slave Coast '. In this area, or in the eastern part of it, live the Yoruba, a people whose string figures may be conveniently associated with those of the Gold Coast.[1]

The eastern and western portions of the Gold Coast are low and sandy, backed by narrow strips of flat lands, ten to twenty feet wide, and facing towards a very shelving sea-floor. This coast-line has been progressively elevated, and this aided by the action of strong south-west winds and an oblique east-flowing current is continually building up the land at the expense of the sea. The result is a sand-choked shore, with shoals, tidal sand-banks, shore-sand barriers, sand-blocked river mouths and lagoons. A surf belt is a perpetual hindrance to shipping and, under certain conditions, a source of real danger to smaller boats.

In contrast with these low eastern and western portions the central part of the coast from about Axim to Apam is higher and presents a rocky front.

Behind this coast-line the land rises in a series of terraces to a wide platform which extends up into southern Ashanti. The general surface is that of a plain, but it bears upon it numerous ridges and ranges of higher hills.

But perhaps it is rather a climate that is associated in our minds with the Gold Coast—a hot, steaming, tropical climate where for weeks on end it rains, where everything grows damp and mildewed, human effort is relaxed, and plagues and fevers are at home. Doubtless this popular notion is only partly true, but without a doubt also the climate has impressed itself deeply upon West Africa.

The prevailing temperatures are high but the heavy summer rains are a more important element. The wet season lasts for eight months of the year and is ushered in by tornadoes. Of some parts of this region the saying is true that ' It never rains but it pours ' ; the dull roar of the descending torrents muffles all other sounds.

These rains from the south-west drench the rising

[1] *Vide* p. 119 *infra*.

western slopes as far as about Cape Three Points, and farther inland they fall heavily on outstanding ridges and scarps. The streams descend quickly to the coast, swollen enormously in the rainy season and cutting deeply into the inland platform. They are interrupted, especially near the coast, by rapids and low falls, and at the coast itself they often spread out behind the sand-barriers and form brackish lagoons. One of the most interesting of these streams is the Tano. This flows in a nearly north to south direction and meanders through the floor of a wide reedy valley which is much too large for it, especially in the dry season. Over most of this country a rain-forest spreads and descends to the coast, acting as a wind-screen and helping to shut off the drying influence of the winter Saharan wind, the ' harmattan '.

Farther east the rains are less, and in parts there are comparatively dry stretches along the coast, though the rain-forest covers the higher land farther in. In this eastern part, as also along the Slave Coast, the vegetation is on the whole much more open. There is plenty of heavy forest but there is also much grass, scrub, and park-forest country.

By far the largest and most important river of the Colony is the Volta. It is not a native of these parts : it comes from the grass and scrub-lands of the north and only its lower portion falls in our area. Like other Gold Coast streams it is subject to exceptionally great rise and fall according to the season and it also suffers from rapids and a sand-encumbered exit to the sea.

As for the name ' Gold Coast ', the title is not inappropriate and yet it may mislead. It is misleading if we think in modern terms, for the Gold Coast is not one of the great gold-producing areas of the world. And yet gold is widely prevalent in the rocks, and natives still wash it from the stream beds. After a rain-storm, it is said, gold used to be obtained from any gutter in Coomassie.[1] Even the

[1] **34**, p. 36.

sands of the sea-shore in places contained recoverable gold, and gold was obtained by primitive methods long before Europeans arrived. In spite of this the name ' Gold Coast ' was due to something of an accident. The Sahara was a great barrier to the Arab trader and the gold acquired along the coast mostly remained there and was stored up, usually in the form of ornaments. It was this accumulated store of gold that fired the imagination of the early European adventurers.

Iron, tin, a little copper and other ores are found, and these form the essential basis for the important native metal-working crafts, just as the abundance of natural fibres have supplied the means for the weaving of textiles—baskets, mats, cloth, and so forth.

The natural occupations of the people are very diverse, for their land is rich and varied in opportunities. Moreover, this variety is reflected, as we shall see, in the string figures. The natives of the coastal fringe, so far as they are not town and port workers, are mainly fishermen, for the shallow coastal waters, the lagoons, and river estuaries teem with fish. These fishermen adapt themselves naturally to trade and are often found as surf boatmen ferrying passengers and goods ashore from the off-lying steamers. ' Remarkably capable they are in handling their boats, watching their opportunity to cross the bar on the crest of a suitable roller and grounding as near to the shore as possible.' [1] But though the fishermen of the Volta mouth (Adda) district go fishing hundreds of miles up that stream, the rivers in general are not much used for commerce or intercourse. The rapids are greatly feared, and ' broken water '—whether surf or rapids—is one of the unpleasant realities of this people's environment.

Agriculture is widely practised in the forest region but it is not of a very high order. It has, indeed, advanced only a little way beyond the primitive ' move-on ' robber type of cultivation, with its trail behind it of impoverished

[1] 25, p. 371.

and degraded forest land. The lot of the native farmer is no easy one. Quite apart from the labour of clearing, the pioneer may have his outlying fields raided and destroyed by elephants, baboons, or, where a river is near, by an enterprising hippopotamus. And even where the advance of clearing and settlement has driven back these foes, swarms of birds may swoop down and uproot the grain. The bird-life is exceptionally abundant and varied, and comprises both permanent denizens and seasonal visitants. Birds are not so dependent upon undisturbed forest conditions as many of the other animals, and when drought, famine, or fire drives them from their haunts, they descend in hordes upon the fields.

Yams, maize, millet, and gourds (for calabashes) bulk largely among the plants cultivated, and in addition these people keep pigs, goats and sheep, the two latter hardly distinguishable from each other. The goat of the Gold Coast is remarkably short-legged. Goats of dry regions are usually long-legged and are able, by rearing up, to reach to some height after their food. In a wet tropical climate, with its riot of undergrowth and weeds, the short-legged type can easily get all the food required.

These animals supply a certain amount of leather, but the greater part of that which enters into the local leather-working crafts probably comes from the interior steppe-lands and is brought down by cattle-drovers or in caravans. This is the more so since large game, such as the buffalo, is steadily diminishing, and with it the former hunting habits of the people.

Wherever cattle are kept, whether in forest or grassland, the leopard is a stealthy and dangerous enemy. From sheer lust of blood he destroys far more than he can devour, and his ability to adapt himself to either forest or scrub-land enables him to maintain himself when other beasts of prey retreat before the advances of man. Mention must also be made of snakes and ants. These are ubiquitous,

and some species are a plague to mankind in grass-land and forest alike.

* * * * *

The Gold Coast lies within the limits of the Sudan as defined by Dowd.[1] The Nigritian inhabitants are classified according to their principal food [2]—the Gold Coast natives being in the banana zone, while the Yoruba, in their more open country, live principally upon millet.

The best-known tribes inhabiting the Gold Coast are the Ashanti and the Fanti, belonging both to the Tshi-speaking group of peoples. Both have migrated coastwards from somewhere in the interior, but while the Ashanti remained on the higher ground, the Fanti penetrated to the coast.[3] The Yoruba have also come from the north, but their migration is of more recent date. They reached their present territory on the Slave Coast as late as the nineteenth century.[4] Both Gold Coast and Yoruba natives are fine, well-proportioned people, and though in general they have the characteristic Negro features, these are considerably fined-down, probably by an admixture of northern blood.

Both the Ashanti and the Yoruba were formerly powerful nations, and the Ashanti chiefs, in particular, were despots who demanded a rigorous code of ceremonial. The whole nation had a not ill-deserved reputation for cruelty and blood-lust, and the annual human sacrifices amounted to thousands.

As is commonly the case, despotism was accompanied by the extensive practice of slavery: all the tribes with which we have to deal were great slave-owners. The white man is maligned when he is accused of having introduced slavery into West Africa. It existed there for centuries before his advent. To a man as averse from work, as is the average West African negro, slaves are almost a

[1] **7**, p. 65
[2] Ibid., p. 90.
[3] **8**, p. 331.
[4] **9**, p. 10.

necessity. They also formed a convenient reservoir in case of war or for purposes of sacrifice.

* * * * *

West Africa is the land of folk-tales. Has not our beloved 'Brer Rabbit' come thence via the negro slaves of the United States? It is extremely likely that string figures will also be found there in plenty. In a land where leisure and story-telling abound it would indeed be strange if there were not also a wealth of string figures, and West Africa should prove a fruitful field for the collector. As it is, only two collections have so far been made, one of sixteen figures from the Yoruba,[1] and the other of twenty-nine from the Gold Coast.[2] In what follows we propose to take these two collections together. This is justified, we believe, by the statement of Parkinson that his Yoruba figures are known on the Gold Coast and that they probably extend along the whole of the West African seaboard.[3]

How they were so distributed is a problem. Either they have a common origin inland or they have spread east and west along the coast. In view of the late arrival of the Yoruba in this area the former alternative would seem the more likely. Two pieces of information, did we possess them, would contribute towards greater certainty. The first is: Do the people who inhabit the space intervening between the Yoruba and the Ashanti also know these figures? And again: Do both sets of figures yield evidence of savanna life? If both sets are derived from a common source, and that source lay in the savanna country of the interior, obviously traces of that type of life may reasonably be expected. Traces of savanna life are discernible in the Yoruba figures, but hardly, if at all, in the Gold Coast collection. The Gold Coast natives, therefore, if ever they had savanna figures, must have forgotten or

[1] 32. [2] 14. [3] 32, p. 132.

renamed them after their change to a forest life.[1] The Yoruba, on the other hand, are comparatively recent arrivals. Consequently, though their environment is still savanna, we may be justified in regarding this element in their figures as derived from their former habitat. Until, however, more extensive collections are made, the matter must necessarily remain conjectural.

According to Dowd, the people of the Banana zone show no appreciation of nature.[2] And yet we find five string figures which portray physical circumstance—Rain, the Wave, Broken Water (i.e. Rapids), Reeds along the River Tano, and the series Earth, Heaven and Stars.[3] Bearing in mind our previous remarks upon the West African climate, the figure ' Rain ' seems obvious and requires no further comment. As for the others, when we study them more carefully we find that each has its own special significance and, in fact, that each to some extent reflects the spiritual beliefs of the people.

There seems to be a general belief throughout West Africa in a Supreme Being. The Ashanti name him ' 'Nyame '. According to Ellis [4] and other writers he is none other than the Christian God, vaguely known since the first coming of the Portuguese.[5] Besides 'Nyame, ' the Great God of the Sky, of all earth the King and Elder ',[6] there is the great Earth deity,[7] who is also universally recognized. Thursday is the day sacred to her, and no Ashanti farmer will break the soil on that day. In view of the importance of these deities it is natural to find Earth and Heaven represented by the striking series of string figures referred to.[8]

But these great deities are remote and are not concerned

[1] *Vide* p. 118 *supra*. [2] **7**, p. 336.
[3] *Vide* pp. 127-33 *infra*, and **14**. [4] **8**, p. 24 ff.
[5] Rattray, however, affirms that ' 'Nyame ', the Sky God, the Supreme Being, is a conception of the Ashanti and has nothing to do with Christian or even with Mohammedan influence—**33**, p. 140.
[6] Ibid., p. 144. [7] Ibid., p. 215. [8] *Vide* p. 127 *infra*.

much with the affairs of men. Hence a series of lesser gods have been delegated by the Greater Ones to attend more intimately to the needs of human beings.[1] The chief of these is Tano,[2] who has his earthly seat near the source of the river of that name.

To explain this matter we must refer for a moment to certain fundamental beliefs of these people. All animate objects—and most inanimate ones as well—have two individualities [3] which we may perhaps call 'the body' and 'the spirit'. For instance a man has his spirit—or *kra*—which leaves his body during sleep. This *kra* must not be confounded with a ghost, for after death the ghost also has its spirit.[4] Thus the sacred river Tano is worshipped not for itself but for its spirit the god Tano. Hence the 'Reeds along the River Tano',[5] shown in the string figure, have a special significance and are not merely the reeds in an ordinary river.

> The stream crosses the path,
> The path crosses the stream;
> Which of them is the elder?
> Did we not cut a path to go and meet this stream?
> The stream had its origin long, long ago.
> The stream had its origin in the Creator.
> He created things
> Pure, pure Tano.[6]

Besides Tano there are a number of other gods. The endowment of natural objects with spirits is normal in an animistic stage of belief, and the association in the case of streams is peculiarly familiar from Greek and Roman classical mythology. Possibly, however, the persistence of such beliefs may be partly due to the physical nature of the streams themselves. In both West Africa and the Mediterranean countries the streams generally, whether from their marked seasonal flow or from the presence of

[1] **33**, p. 141. [2] Ibid., p. 172. [3] **8**, p. 182.
[4] Ibid., p. 155. [5] *Vide* p. 130 *infra*.
[6] Extract and translation from the Drum language.—**33**, p. 89.

rapids, are of very little economic utility. Such streams may naturally retain a mystery and glamour which soon fades from a highway used for commerce or for general human intercourse.

The spirits that dwell in natural objects are frequently malevolent. It is obvious then that any spot that is particularly dangerous must be inhabited by a particularly powerful spirit or spirits, and such is the case with surf and with rapids.

Mention has been made of the surf along this coast,[1] and the impression it has created in the minds of the people might well be indicated by the inclusion, even in a small collection of string figures, of a representation of a ' Wave '.[2] ' Rapids '—or Broken Water [3]—are represented also, and it seems likely that the portrayal of these two important features is not merely fortuitous.

To conciliate malevolent spirits a class of priests has arisen.[4] These priests—often miscalled ' fetish men '—are naturally a powerful class, and it is not surprising to find a representation of one of them in string.[5] There is also a figure, similar to Parkinson's ' Camp bed ',[6] which is designated a ' Fetish man's Breastplate '.[7]

Turning now to the string figures of animals, they form a large proportion—about one-half—of the total number. But the animals represented are hardly those we should expect to find in a country where big game of all sorts is, or was till recently, so abundant. Elephants, hippopotami, lions, antelopes, monkeys—none of these appear in our present collections. Can it be that their absence is significant ? The natives, as we have seen, are not primarily hunters, but live chiefly on vegetable foods. Possibly the animals mentioned are of no particular interest to them. It seems significant, at any rate, that we find the figure of

[1] *Vide* p. 116 *supra*.

[2] *Vide* p. 131 *infra*. The native who taught this figure to Griffith did not know its name, but immediately agreed to ' Wave ' as an appropriate designation.

[3] *Vide* p. 133 *infra*.

[4] **8**, p. 119.

[5] **14**, p. 294.

[6] **82**, p. 141.

[7] **14**, p. 295.

a leopard skin.[1] A leopard-skin, no doubt, is an object useful and commonplace enough, but it should be remembered that the leopard is, of all animals, the most feared by keepers of cattle, particularly of the smaller head, sheep and goats.[2]

Another striking figure is that of the 'buffalo skin'.[3] There is a tradition amongst the Yoruba relating to the method of determining the number of soldiers required for a military expedition.[4] A buffalo skin is pegged down and mounted warriors ride across it until a hole is worn through the middle. The number of soldiers required to accomplish this is deemed sufficient for the task in hand. For a large expedition two skins are pegged out, one on the top of the other. The question naturally arises whether the Gold Coast figure of the 'buffalo skin' (pegged out) is known to the Yoruba and whether it has any reference to this custom. The strength of the Yoruba was formerly in their cavalry, and greatly exaggerated accounts of its numbers were circulated among the neighbouring tribes.[5] The existence of cavalry in the Yoruba country is probably due to the fact that horses are able to live there. The open savanna is comparatively free from the tsetse fly which infests the forests and swamps of the greater part of West Africa. Hence it is natural that among Yoruba figures is one representing a saddle.[6]

Of even greater interest, possibly, are the string figures of birds. Both the Gold Coast and the Yoruba natives have figures called 'Birds in the Corn'.[7] We pointed out above the great variety and richness of bird life. So long as the forests offer enough food, forest-dwelling birds naturally keep to them. But the native cultivated fields are often carved out of virgin forest, and in the dry season, especially towards the end of it, the supply of forest food diminishes. At the same time the grain in the fields is

[1] **14**, p. 276. [2] *Vide* p. 117 *supra*. [3] **14**, p. 293.
[4] **9**, p. 9. [5] Ibid., p. 8. [6] **32**, p. 132.
[7] **14**, p. 280; **32**, p. 135.

ripening. Hence the common practice of stationing slaves about the fields to scare away the birds by shouting or rattling calabashes. There is another Gold Coast figure of a Parrot's hole in a Tree Stump [1] and a Yoruba figure of a Parrot cage.[2] Such figures speak for themselves and give a vivid glimpse into some of the natural surroundings of the native cultivator.

Snakes, again, are common enough in the tropics, but not everywhere are there such large numbers of tree-climbing varieties. One of these we find portrayed in string.[3] Another figure [4] shows the Horned Viper (*Cerates cornutus*). This is a most deadly variety having horns which are reputed to be poisonous if trodden upon. The figure is eloquent of the fear and respect in which this viper is held. Tortoises, too, are found in the timbered country and are used by the natives for food. We have string figures of both the land and the water varieties.[5]

We have referred above to those most destructive of smaller pests, the ants. Famous amongst these is the Driver ant. A party of these ants on the march will devour practically everything that lies in their path and their bite is most painful. There are numerous other varieties, and one of our string figures shows Winged ants,[6] whilst another, the Ant's Hammock,[7] evidently illustrates the nests made by certain tree ants in curled leaves. These nests are not without interest. Kitson says : ' Pale brown tree-ants infest certain kinds of trees, among them the kola. Their nests are made in curled leaves, often held together by cobwebs, apparently the discarded homes of spiders, for both kinds of insects are frequently found on the same tree. There is a belief in Northern Ashanti that the kola trees that are covered with both ants and spiders bear the best fruit. Probably noxious pests of the kola are destroyed by these insects.' [8] This quotation admirably explains the presence of this figure in our collection.

[1] 14, p. 277. [2] 32, p. 136. [3] 14, p. 280. [4] Ibid., p. 289.
[5] Ibid., p. 284. [6] 14, p. 272. [7] Ibid., p. 275. [8] 25, p. 389.

String figures, such as 'Birds in the Corn', indicate agriculture. The Yoruba have a further figure of a '*Fu-fu* stick' [1] (used for mashing yams) and a 'Calabash net'.[2] Calabashes are useful in many ways, as domestic utensils, for washing gold, and for various other purposes. In addition a certain amount of stock is reared, especially in the Northern Territories of the Gold Coast. Thence it is regularly brought by recognized stock routes to the markets of Coomassie. The Yoruba have a string figure 'Two Rams with their horns interlocked', [3] and another of a 'Pig sack',[4] whilst the Gold Coast 'Goat's beard' [5] also falls into this class. It is just possible that in some of these figures, as also in that of the 'Buffalo hide', we have reminiscences of the former life of these people as cattle-rearers on the northern savanna and steppes.

More important, however, and more characteristic of these people are their crafts. Foremost among them is metal-working. From the early part of the seventeenth century until recently the recognized currency of the Gold Coast was gold dust.[6] This was the medium of exchange for transactions large or small.[7] As a consequence each trader had his own weights and scales and one of the Gold Coast figures shows a 'brass pan for weighing gold'.[8] These people are, in fact, skilful workers in metal and most ingenious in their manipulation of bellows and other metal-working apparatus. The West African bellows are commonly made of two wooden cylinders with collapsible leather tops which the operator pumps alternately. There are two string figures which show this movement in a very clever way.[9]

Weaving is also a craft practised with considerable skill.

[1] **32**, p. 134. [2] Ibid., p. 132. [3] **32**, p. 159.
[4] Ibid., p. 137. [5] *Vide* p. 127. *infra*.
[6] *Vide* p. 115 *supra*. According to a law formerly in force in Coomassie it was death to pick up gold-dust spilt in the market-place. This dust was regarded as Government property and was stored away to be used in a national emergency.—**8**, pp. 304–5.
[7] **34**, p. 19. [8] *Vide* p. 134 *infra*.
[9] *Vide* p. 135 *infra*, and **14**, pp. 296–7.

It is a craft of long standing, and it is said to have come from 'the North'.[1] Whether this means that the Ashanti brought it with them in their migration southwards or whether it penetrated to them later, is not clear. The movement of weaving is well represented in the figure 'Father tells me to weave cloth',[2] a figure very like our English 'sawing wood'.

An interesting custom among the Yoruba is that of scarifying the face. This method of adornment is very widespread amongst peoples whose skin is too dark to show tattooing. Each village has its own design so that it is easy to tell from the face-mark to what village a native belongs. The string figure 'The Face-mark of the Town of Owu'[3] presents an example of one of these scarifications.

We may conclude this survey of the Gold Coast by referring to a figure which raises, from a particular angle, a problem at once baffling and of wide application. This is a complicated figure for two persons. It appears to be rather in the nature of a game, for though the first movement represents a 'Horned Viper',[4] the subsequent movements seem to be pure play manipulation. Now various authorities have noted and put upon record the numerous analogies in culture that exist between Melanesia and West Africa, including the Gold Coast. The figure above referred to is found in the Caroline and Philippine Islands, where it is called 'Ten Times',[5] and, so far as is known at present, nowhere else except in West Africa.[6] The figure is a long and complicated one, and the fact that it is for two persons is also most unusual.

[1] 34, p. 20. [2] 14, p. 298. [3] 32, p. 139.
[4] 14, p. 289. [5] 22, p. 271.
[6] A hypothesis put forward to explain this is that both the West African and the Melanesian cultures originated somewhere in Indonesia. Thence the culture spread, eastwards to Melanesia and westwards to the east coast of Africa and so across the continent.

STRING FIGURES

36. Earth, Heaven, and Stars [1]

Opening A with the middle fingers.—Transfer the little finger loops to the ring fingers and the thumb loops to the index fingers.

1. Pass the thumbs distal to all the strings except the ulnar ring finger string, pick this up on the backs of the thumbs and return.

2. Take the loop off each index finger, pass it under the palmar string and replace it on the index fingers without twisting. Release the thumbs.

Repeat 1 and 2.

Pass the thumbs through the index finger loops from the distal side, proximal to the middle finger loops, and into the ring finger loops from the proximal side, return, picking up the four strings on their backs.

Bend the ring fingers down away from you over their ulnar string and then up towards you, picking up this string on their tips.

Turn the thumbs down over the radial index string, allowing their own loops to slip off, thus extending the figure, which is called the Goat's Beard—*aguánini kómuna*.

Release the thumbs and the top twist of the ring fingers.

Take the loop off each ring finger and turn it over so as to untwist it, and then replace each over its respective wrist.

Pass the thumbs distal to the radial index string and pick up the ulnar index and radial middle finger strings from the proximal side.

[1] **14**, p. 286.

Bend the middle fingers down away from you over their ulnar string and then up towards you, picking up this string on their tips.

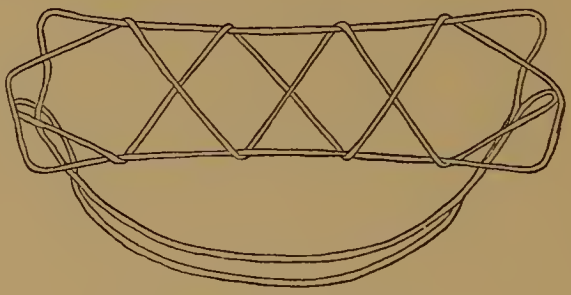

FIG. 36.—GOAT'S BEARD

Extend the figure by pressing down and away from you with the thumbs the radial index string, so that there is a flat pattern below representing the Earth, *asáse*, and a vertical cross above.

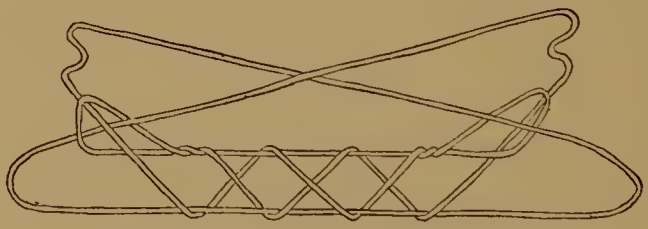

FIG. 36A.—THE EARTH

Release the thumbs and the top twist of the middle fingers. Keep the wrist loop well below the base of the thumbs.

Pass the thumbs distal to the radial index string and pick up the ulnar index and the radial middle finger strings from the proximal side.

Pass the middle fingers proximal to the radial index finger string and pick this up with their tips.

With the thumbs, allowing their own loops to slip off, press down the ulnar middle finger strings so that there is a flat pattern above representing the Heavens—*osoró*, and a horizontal cross below. Do not let the wrist strings slip up the backs of the hands.

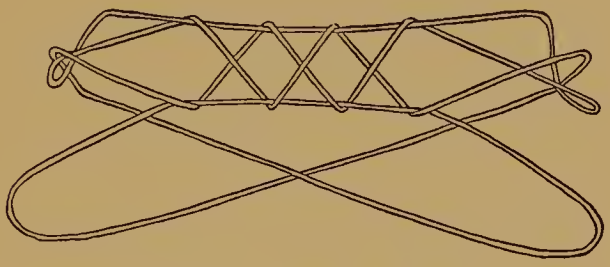

FIG. 36B.—THE HEAVENS

Turn the hands to face each other and pass the thumbs up beside the middle fingers and draw towards you the two ulnar index strings.

The three triangles so formed represent the Stars—*nsóroma*.

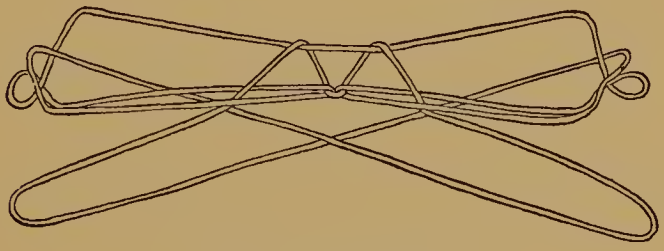

FIG. 36C.—THE STARS

37. Reeds along the River Tano [1] (*Táno no nnómire*)

Place the loop hanging down equally on either side of the left arm, the proximal string over the forearm and the distal string over the wrist.

Pass the right hand through the radial pendent loop, then distal to the distal ulnar pendent string, and into the ulnar loop from the far or ulnar side ; then, turning the hand upwards towards you, through the radial loop, pass it distal to the radial distal string and into the radial distal loop from the distal side. Turn the hand up towards you and extend. Keep the wrist strings well apart.

FIG. 37.—STAGE IN THE REEDS ALONG THE RIVER TANO

With the mouth pick up the right proximal radial string and the left distal radial string (running from the radial side of the left wrist to the ulnar side of the right wrist).

Remove the distal wrist loops from both hands.

Pass the left index and middle finger on either side of the four mouth strings and clip them together, at the same time releasing the mouth, so that two short loops protrude dorsally ; these loops should not be twisted.

Fold down the nearer loop towards you and hold it between the left thumb and index finger, and fold down the farther loop away from you, holding it between the left middle and ring fingers.

[1] **14,** p. 274.

Pull up a little way the distal dorsal index and middle finger loops and pick them up from the distal side with the right index and middle fingers, lifting them off the left hand. Draw out.

Grasp the strings with the fingers and throw the wrist loops over the fists. All strings are now on the index and middle fingers.

Pass the thumbs distal to the radial index strings and pick up from the proximal side the ulnar index and radial middle finger strings.

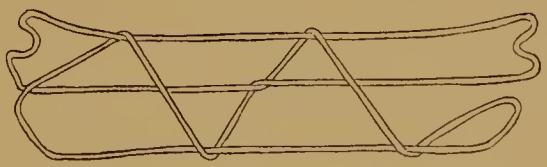

FIG. 37A.—REEDS ALONG THE RIVER TANO

Pick up with the tips of the middle fingers their ulnar string, thus giving it an extra turn around these fingers.

Extend the figure by pressing down the radial index string with the thumbs, whose own loops slip off.

This figure is also known to the Ashanti as ' Canes Along the River Pra '.

38. The Wave [1]

Wrap the string twice clockwise round the left wrist.

Make a loop about six inches long at the end of the long pendent loop and hold it between the right thumb and index finger, so that the short loop hangs down.

Pass the four strings so held between the left index and

[1] **14**, p. 281.

middle fingers so that two short loops protrude dorsally. These loops should not be twisted.

Fold down the nearer loop towards you and hold it between the left thumb and index finger, and fold down the farther loop away from you, holding it down between the left middle and ring fingers.

Pull up a little way the distal index and middle finger loops and pick them up from the distal side with the right index and middle fingers, lifting them off the left hand. Draw out.

Clench the fingers of each hand over their strings (four in the right hand and three in the left hand) and pass the right hand twice clockwise round the left so as to unwrap the wrist strings.

Pass the thumbs distal to the radial index strings and pick up from the proximal side the ulnar index and radial middle finger strings.

Pick up with the tips of the middle fingers their ulnar string, thus giving it an extra turn round these fingers.

Extend the figure by pressing down the radial index string with the thumbs whose own loops slip off.

Hold the figure horizontal and give it a shake when the loose string will form two long loops, which represent the wave.

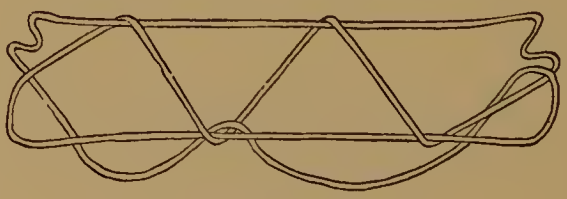

FIG. 38.—THE WAVE.

39. The Rapids [1] (*Ohóroto*)

Opening A with the middle fingers.

Bend all four fingers from the distal side into the little finger loop and turn them up away from you, so that the ulnar little finger string becomes the radial index string.

Bend the index, middle, and ring fingers from the distal side into the thumb loops and turn them up towards you so that the radial thumb string becomes the ulnar ring finger string.

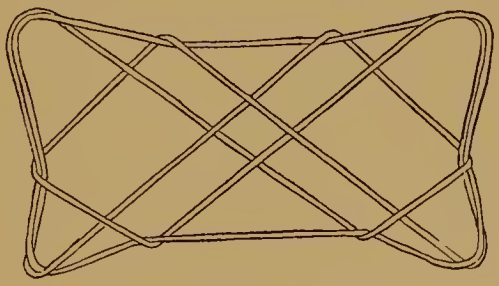

FIG. 39.—THE RAPIDS

[Pass the thumbs from the proximal side into the index loops and pick up both the radial strings.

Let the double strings at the backs of the fingers slip over their tips so that they become the ulnar thumb strings.

Pass the index and middle fingers from the distal side into the thumb loops and pick up both the radial thumb strings. Release thumbs.]

Repeat the portion in brackets.

Pass the thumbs proximal to the figure and pick up on their backs the radial middle finger string.

Bend the middle fingers over the two radial index strings and hold these against the palms. Release the thumbs

[1] 14, p. 285.

and extend the figure on the tips of the index and middle fingers.

This figure represents 'broken water' or rapids on a river.

40. A Brass Pan for Weighing Gold [1] (*Mfámfa*)

A short string should be used.

Position 1 on the left hand.

With the right index finger draw down the left palmar string until the right wrist rests in the pendent loop.

1. Pass the left thumb proximal to the little finger loop and with its back pick up the ulnar little finger string from

FIG. 40.—A BRASS PAN FOR WEIGHING GOLD

the proximal side, returning proximal to the radial little finger string.

2. Release the left little finger and without drawing tight pick up from the proximal side the ulnar thumb string.

[1] **14**, p. 297.

Repeat 1, the distal thumb loop slipping off as the thumb passes under the little finger loop.

Repeat 2 and 1 twice, so that the thumb picks up the ulnar little finger string four times in all.

Pass the left index finger proximal to the palmar string and into the thumb loop from the proximal side. Straighten it out, at the same time releasing the left little finger and the right index finger.

The left little finger may replace the left index finger in order to extend the figure better.

41. The Bellows [1] (*Afá*)

A short string should be used for this figure.

Position 1 on the left hand.—Past the right index finger from above behind the left palmar string, pull it out for a few inches, turn up the right index finger away from you and slip the loop over the left middle finger, releasing the right index finger.

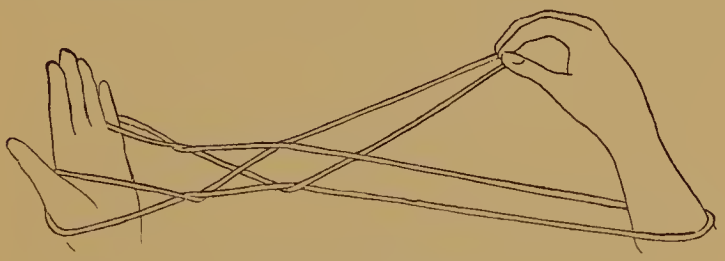

FIG. 41.—THE BELLOWS

Draw out the left middle finger palmar cross as far as possible with the right index finger, and let the two loops hang freely.

Pass the right index finger from the distal side through the left middle finger loop and pull out the palmar string

[1] **14**, p. 297.

as far as possible. Pass the right hand from below through this loop and let it slip well down the right arm.

Turn the left hand palm downwards, and with the right index finger pull the left middle finger dorsal string off that finger, and extend.

Spread open the left hand widely, and by rocking the right arm about the elbow the bellows will work.

CHAPTER VII

CONCLUSION

WE have now studied five representative groups of string figures and have perhaps gleaned, besides a certain amount of incidental detail, some idea of the broader aspects of the subject. To these groups has been added a table classifying the objects represented by string figures.[1] In compiling this it has been necessary to make a detailed study of all the available material—published and unpublished—that deals with, or makes any mention of, string figures. Hence any conclusions that may be reached here are based on a far wider study than is evident from the text of this book.

But before beginning we must emphasize again, and in the clearest manner, the insufficiency of our data and hence the provisional nature of our deductions.[2] And this is quite apart from such suggestions as we may wish to offer, suggestions which in the nature of things can be no more than hypotheses.

To illustrate the caution necessary in dealing with evidence of certain kinds we may give one illustration. We have argued on occasion [3] that the existence of, say, four or five figures representing the same object denotes that it is important or prominent in the minds of the people concerned.

[1] *Vide* p. 151 *infra.*

[2] In some cases, too, it is not only the lack of string figures that causes difficulties but our lack of information in other respects also —for instance, as to the meaning of the incident or person (often mythological) they represent.

[3] *Vide* p. 45 *supra.*

The Navahoes have three figures representing owls. Does this then mean that the owl has particular significance for the Navaho Indian? The three finished figures differ considerably from one another, yet they are made by almost the same manipulation, the differentiation arising from a slightly different initial twist in each case.[1] If, therefore, the first figure made resembled and was called an 'owl', the others were quite probably called the same by analogy. Here, then, would be a case where multiplicity denoted nothing since its origin was merely mechanical.[2] It also demonstrates very clearly the necessity of publishing the method of making the figures as well as their names.

With this general caveat we may proceed.

The first question to be raised is naturally that concerning the almost world-wide occurrence of string figures. As to the answer to this there can be little reasonable doubt.

String figures are widely distributed because they are made with a substance of universal importance, for a characteristic of primitive material culture is its dependence upon 'string'. It is not always the same 'string', of course: it may be of animal origin—the Eskimo use sinew or sealskin thongs while the Australian blacks use kangaroo tendon or human hair—or more commonly a vegetable fibre. The variety of fibres used in different parts of the world for constructional weaving and general purposes differs very widely, and quite conceivably the finer details of the string figures found in any given area may have been partly determined by the nature of the medium available.

Fibres, or strings, easily assume shapes—as any one knows who has tried to unravel a fishing line. We may suppose, indeed, that part of the effort of primitive, as of civilized, peoples was either to discover or artificially to prepare fibres that would assume shapes easily. Stiff

[1] 22, pp. 53–5.

[2] *Vide* p. 48 *supra*.

fibres are mostly useless fibres. The patience and skill required in the making of string figures were doubtless the same essential human qualities as were so frequently required in the more elaborate constructions of early civilization: the game, the puzzle, as so often, reflected in play the serious puzzles and problems of life.

But if string figures are impossible without a developed acquaintance with fibres, the mere existence and use of fibres does not altogether account for string figures. Granted fibres and their use, however, the origin of string figures is very natural—far more natural, for instance, than the origin of carved or linear images developed out of chance resemblances of stock or stone to human or animal shapes. In the latter case human intervention—modelling of the original—must denote a considerable step forward. In the case of string figures human manipulation and control of the medium was pre-existent: string figures arise out of the *use* of string.

It is clear that we may fairly safely assume that string figures have a very early origin and that they are based on chance resemblances. Neuhauss,[1] indeed, suggests that the prototype of string figures are to be found in the tangled creepers of the primitive forest. Many chance representations of common objects may be seen there, and the children tear them down and try to imitate them with their fingers. While this may be true in certain cases, it naturally does not explain their occurrence among such peoples as the Eskimo or the Plains Indians of North America. Here the chance resemblances might be found in the threads or sinews that awaited the sewer or weaver.

Skill in manipulation being present it is no great step forward to the conscious elaboration of figures for purposes of amusement and play with, perhaps, in certain cases, a magical significance as well (*vide infra*).

And just as string figures probably had an early origin, so too they appear to fade quickly away before the higher

[1] **30**, p. 377.

lights of civilization. As the use of fibres, or their manipulation by hand, is very largely replaced by more steadfast materials and methods, so probably representation in string yielded to more elaborate and substantial kinds of imagery. Just as string, twine, cordage, and rope work linger on for numerous, but on the whole minor, uses, so string figures seem to fade out of the memory of the peoples save for a few simple figures and some of the more striking knots and tricks.

It seems significant, at any rate, that the peoples mentioned above as practising string figures in present or fairly recent times are all proples of relatively backward culture. The white, yellow, and brown peoples of Eurasia —save for a few rather out-of-the-way survivals—seem almost to have forgotten about them.

We may fairly safely venture the generalization that civilization kills ' cat's cradles '.

But whatever truth these suggestions may contain historically, they do not tell us what string figures really are. To understand this we must examine the figures themselves, by classes as well as individually.

In our Introduction we proposed the question : Are string figures a true form of representative art, are they conscious imitations of real objects executed in the medium of string, or are they merely ' child's play ', make-believe, string fantasies with names attached ?

On general *a priori* grounds—especially if what we have said above regarding their origin is correct—there seems to be little doubt that they are the latter, that is, in their simplest and most primitive forms.

This is the impression left by a careful study of a large number of figures from very various sources. They give the impression of being rather clever—sometimes delightfully clever—elaborations in string to which the more appropriate ' object-names ' available are then attached.

And obvious as is this theory we have, as it happens, a virtual proof of it from analogy. The Brahmins of India,

as is well known, wear over the left shoulder and under the right arm the sacred triple thread. From these threads the younger Brahmins—presumably by mere idle ' fiddling ' —have evolved quite recently certain simple figures, and to these figures they have given various names, mostly connected with sacred objects. The older Brahmins do not approve of this secular use of the sacred threads though looping them round the fingers to keep count of repeated prayers is quite legitimate.[1]

Here is a case of what one might almost call ' spontaneous generation ' of string figures, and analogous cases must surely have happened elsewhere. It is impossible to imagine that they have all spread from one centre ; they must have sprung up in many different areas. But the medium being a loop of string, and the apparatus merely ten fingers, it is hardly surprising that we find simple and easily made figures (though sometimes arrived at by different methods) occurring in widely separated parts of the world and signifying different objects. Thus the Torres Straits ' Fish Spear ' becomes ' Pitching a Tent ' in British Columbia, and the Caroline Island ' Chief ' becomes a ' Giant Crane ' in Queensland.

Now if this were all that string figures really are there is little either surprising or interesting about them.

But nearly every one who has seen and been interested in these figures—and the writer is far from relying in this upon her personal impressions only—has been interested because there is felt to be something more. In fact, it seems that, just because the above explanation is obviously true of so many string figures, those of which it is not true, or not the whole truth, make the greater impression. As one becomes familiar with the total range of figures the distinction between the former class—pure fabrications post-named, as it were—and these others becomes more apparent.

In the first place, there is the question of memorizing

[1] 15, p. 97.

and repetition. The more developed figures are so complicated and their construction so lengthy that at first sight it seems marvellous that they could ever have been invented, and still more marvellous that once done they could ever be recaptured.

But memory after all is always marvellous. We have only to think of the long verse recitals in the days before writing was common, or of the repetition of complicated music from memory, to see that the power to remember intricate string constructions is quite a normal possibility. The learning of string figures is a comparatively easy thing once the common movements are mastered, and when one is, so to speak, in training it is only necessary to go through a figure once in order to grasp it. A native takes rather longer to learn a figure than does a trained white man, and this has been commented on by the natives themselves.[1] But the memorizing—the permanent fixing—takes much longer, and the figure has to be repeated from day to day until it becomes mechanical. It is the writer's impression, indeed, that when the figures have become quite familiar they are repeated by a kind of ' muscular memory ' that is partly unconscious.

Then there is the question of appositeness. Granted that many identical figures occur in different parts of the world, when we study a regional group of figures as a whole and in its geographical setting, we cannot but be struck by the close general adaptation of figure types to the range of objects presented in the environment.

Think of the remarkable series from the Alaskan coast, where the river starts between two mountains, and then flows beside a range of mountains and down into the plain where only a single mountain can be seen, and then presently we see a man in a boat catch a salmon. Think also of the wonderful ' Fox and Whale '. Then contrast with these the figures from the tropical seas: ' Branching Coral ', ' The Coco-nut Palm ' and the ' Head-hunters '.

[1] **26,** p. 221.

It is not only that the figures reflect different environments ; the whole range and style of the figures is different.

It may be argued that this is only a case of natural selection and survival. Out of the multitude of string figures that have probably been made at one time or another in any given place and environment, only those have survived which have been felt to be particularly appropriate—that is to say, those which bore some resemblance to familiar objects and were, therefore, of common interest and could readily be named and remembered, became a common heritage.

Doubtless there is a good deal of truth in this argument. The question as to how far string figures are true artistic creations becomes in the last resort a matter of individual judgement. The impression of the writer—and it is an impression that will probably be shared by others who study the facts—is that there is a distinct element of art involved. Not all the figures can be explained by the above means : there is a residue, or rather an element, that goes beyond mere accident.

Having discovered that a series of manipulations gave rise to certain figures, it is easy to imagine that the native would go farther, and by introducing a slight modification develop a new figure. This might easily have been unintentional—for it is only too easy, for instance, to make a ' Horned Star ' instead of ' Two Coyotes ', especially if one is talking at the time. Having made a mistake and found a new string figure, other deliberate variations might well be introduced, and the figures so formed given fresh names.

As in other forms of art—for surely by now we are justified in calling this pursuit an art—there is no real antithesis between the fortuitous and the conscious form, but the second arose as a natural development from the first.

This, after all, is perhaps in line with the normal genesis of art. From the ' chance resemblance ' figure, simple and

elementary, more complex figures are gradually evolved. Growing skill in manipulation and growing powers of memorization give greater freedom of execution. Arising from this we get the beginnings of directive and constructive art, and finally we seem to observe something like the conscious creation of string images imitating familiar objects, and with this the rise of the true ' artist in string '.

This hypothesis is strengthened by one or two features of string-figure groups which are hard to explain on other grounds. One most striking feature of string figures, found in quite a large number of instances from different localities, is their ' kinetic ' quality. The figure represents not merely an object like the ' Sea-gull ', but an object that moves, like the ' Coyotes ' or the ' Caterpillar '. Or again there may be a suddenly-formed object such as ' Lightning ', and here we get the element of surprise such as occurs in the ' Apache Door ', where the performer rubs his hands together before displaying the final figure in order to make this more dramatic. Other figures—such as the ' Eel ' and ' Flint and Steel '—cannot be displayed unless the hands or arms are twisted or crossed. Again the ' dazzle ' element may be introduced, as in ' Look ! ' where the figure is made and unmade with great rapidity.

In a further development of this idea there is a series of figures showing a developing scene, as in the Alaskan river or in many of the Palau figures.[1] For instance, the ' Plantation of Oguíth ', (*a*) the plants are already sprouting, (*b*) now we remove the cover from the young tobacco plants, (*c*) now the plant is topped, (*d*) now the tobacco is ready. Or a story or legend may be illustrated, as in the Kiwai ' Méuri ' and a number of Palau and Hawaii figures.

Here we might break off to consider for a moment how excellently adapted to this purpose is the supple medium employed. The other materials at the disposal of any native were hard and stubborn. Until the appearance of the white man the Eskimo, for example, carved his ivory

[1] 35, p. 57.

with bone tools, and many Papuans had only shells with which to work wood into the shapes required. No audience could wait for such illustrations to be made for the stories they listened to. But a looped string can be made to assume many shapes, and the eyes will be held as well as the ears. We ourselves find an illustrated lecture much easier to listen to than a discourse, and a cinematograph film more entrancing than lantern slides. It is not improbable that the native story-teller can hold his audience better if he has string figures—and especially moving figures—to illustrate his tales. Have we, then, here the first embodiment of the cinema—the original moving picture ?

Some string-figure series seem to us quite unconnected : some of the Palau figures, for instance, and the Eskimo ' Eyes ' and ' Mouth ' that dissolves into ' Two Squirrels '. In this last, however, the final movement is a very common one among the Eskimos, and the objects made are so obviously ' squirrels ' that the explanation is probably again a mechanical one.

Another class of figure is that which although not moving yet illustrates a dramatic situation. A Palau figure shows a man with a fish on his hook and each pulling against the other ; similarly two men have a tug of war over a piece of stone money. Here the imagination of the onlooker must supply the movement.

As the technique of the collectors improve, more and more picture series are being collected, the recent collection from Hawaii [1] being a case in point. So many of the Hawaiian figures are accompanied by songs that Mr. Dickey suggests that at one time they all were. A curious series was learned by the writer in Mailu Island, East Papua, which in thirteen phases illustrates various characteristics of a crab. Can this be a primitive treatise on Natural History, the effort of some Papuan Aristotle ?

Then we may have the case in which the figure is shown to a neighbouring tribe to whom the original name means

nothing, in which case if the figure were learned and remembered it might in all probability be given a new name. This might be the explanation of the different names given to the same figure in different but near-by places.[1] Thus the 'Tide' learned from natives of a coral island in Papua and which represents the tide going down and gradually exposing the coral reef and then rising and covering it again, would not appeal to natives of the muddy Fly River estuary. Here the same figure occurs, but it is called the 'Path', and shows the track to the garden first empty and then with two, four, six, etc., men going to make their gardens; these return in the reverse order and the path is again empty.[2] There is little doubt that string figures are thus handed on, and in Cape York we get both the figure and the actual object (a drum) introduced from Papua.[3] The same phenomenon may account for the presence in Cape York of the Papuan figure 'Making Sago', but as the Cape York natives do not grow or make sago, the name would convey nothing to them, while the movements, recalling to them the familiar scratching of the mound-building brush turkeys, they might quite conceivably name the string figure after them.[4] The criticism might be made that it is difficult to tell which is the original and which the borrowed figure. In this case evidence certainly points to the Australians as being the borrowers; for one thing they had not the means of transport to take them abroad to seek new things, and for another it is usual for people of a lower culture to borrow from those of a higher, rather than vice versa.

Although in most countries in which string figures are found they now survive mostly as games with which women amuse their children or which the little ones play amongst themselves, this is no criterion of their erstwhile importance. It is a commonplace that in the traditional

[1] A different phenomenon from that mentioned above (p. 141) where a simple figure is found in widely different parts of the world.
[2] *Vide* p. 78 *supra*. [3] *Vide* p. 111 *supra*. [4] *Vide* p. 107 *supra*.

children's games we see the last vestiges of old customs—marriage by capture, human sacrifice, and the like. The fact that so many string figures, especially in Polynesia, illustrate legends and contain allusions to mythological beings now lost in antiquity [1] may be taken as evidence of this. And bound up with the above is the magical significance that still lingers in some places.[2] Another exceedingly interesting case of this is quoted by Mr. Dickey,[3] in which a string figure is used by a priest in healing the sick. With this example from Hawaii, and the others mentioned above from Alaska, Arizona, and Papua, surely we are justified in concluding that the connexion between string figures and magic was far more important and more widespread than appears at present.

Turning now from the actual figures to what they represent, we are brought face to face with a different type of problem, namely, the actual value of string figures as scientific data.

As we have seen, the string figures of a given people reflect, not comprehensively, it is true, but often in striking detail, the essentials of the physical environment. No general picture of that environment can be gleaned, or pieced together, from the figures, but, when the general background is known, the figures fit into their place in a highly significant way. The reason is fairly obvious. In order that a string figure should be given, and retain traditionally, a certain name, that name must be familiar to the folk concerned. It may even be, as we suggested above, that the test of the survival of a figure is its appeal to the popular mind as a representation of a certain object or an illustration of a particular folk-tale. Not that all figures represent objects vital or essential, for many picture mere trivialities. The point is that the object must be familiar, and herein lies the value of string figures as a species of evidence.

Not only objects of physical nature and animals are

[1] 5, p. 11. [2] *Vide* pp. 20, 50, 75 *supra*. [3] 5, p. 143.

portrayed, but objects of human construction (houses, canoes, weapons), or of cultivation (plants), and even human beings themselves are portrayed. And not only these but social customs (hunting, dancing, etc.), come in for notice, and also, as we have seen, religious beliefs and observances.

Now, when we come to think of it, this is somewhat remarkable—a remarkable tribute to the power and range of string-figure representation. In fact, we doubt if there is any other medium among primitive peoples that so portrays the environment and trend of thought of those who employ it. A collection of string figures might be likened to a picture gallery giving just that same glimpse into the life and interests of the people who created the pictures—painted or of string.

But even more important than this is the testimony—valuable because it is unconscious—which the selection of certain objects and ceremonies bears to the workings of the primitive mind. If in the physical sphere string figures represent the familiar, in the mental and spiritual sphere they must fairly obviously represent the important. Here, then, we have a gauge of the value of string figures as data for the study of primitive psychology.

Thus it is clear that string figures are, and may in future be much more, valuable as evidence over the whole field of existence—physical, economic, social, and religious—of certain peoples. This evidence, while it is bound to be in some degree supplementary to other types of evidence, can hardly be regarded as incidental. Even now this evidence is of some use, but if we imagine all the string figures still extant collected and properly sifted, the total value of the scientific acquisition would be considerably enhanced.

This brings us to what is probably the most difficult problem that awaits the student of string figures—their classification and comparative study, both geographically and by classes or types.

A rough classification of the objects portrayed has been

attempted below,[1] but a classification depending on the method of formation—more important in the study of the actual figures—does not come within the scope of this book.

Geographical distribution of certain types of figures is most puzzling. Mention has been made above of the simple figures; their wide distribution is easy to understand. The four-diamond figure, which is finally displayed by a curious outward twist of the hands, is more hard to explain. This figure occurs in Central, South, and West Africa, North America (Osage and Blackfeet Indians), and Hawaii. Again, although the figures are made differently, there is a strong resemblance in the final figure and its method of undoing by stages between the Hawaiian 'Three Houses'[2] and the Chuckchee 'Siberian House'.[3] In fact, each new collection published brings to light fresh problems in relationship between the different sets of figures.

The descriptions of over eight hundred figures have already been published and many more have been collected. The time is approaching when a comprehensive survey may be attempted, and the results should be of very great interest. Meanwhile we can at least hope that this book may to some degree crystallize our ideas on this topic, and if any one is by it stimulated to make further additions to our knowledge we shall be well content.

[1] *Vide* p. 151 *infra*. [2] 5, p. 44. [3] *Vide* p. 33 *supra*.

APPENDIX

ANALYSIS OF OBJECTS REPRESENTED BY STRING FIGURES THROUGHOUT THE WORLD

	Africa	Arctic*	N. America†	S. America	Australia	Melanesia	Micronesia	Polynesia	Papua	Total
Celestial .	11	2	15	11	18	9	11	15	12	104
Physical Geog.	9	17	2	5	4	4	4	25	9	79
Plants . .	5	1	1	9	13	9	12	18	23	91
Animals .	43	141	21	43	56	32	38	53	115	542
Human . .	7	29	5	2	8	8	34	7	22	122
Anatomy .	5	26	1	5	0	2	2	11	5	57
Objects . .	47	57	26	23	16	19	24	67	58	337
Social . .	8	4	4	1	4	5	15	9	27	77
Folk, Magic .	4	5	0	1	0	4	13	27	5	59
Rest . .	22	37	2	2	0	16	7	38	13	137
Total . .	161	319	77	102	119	108	160	270	289	1605
Tricks . .	12	12	12	9	0	5	9	20	22	101

* N. America and NE. Asia.

† Excluding Arctic.

NOTE ON NOMENCLATURE

THIS nomenclature was invented by Drs. Rivers and Haddon.[1]

A string passed over a digit is termed a loop. A loop consists of two strings. Anatomically anything on the thumb side of the hand is called ' radial ', and anything on the little finger side is called ' ulnar ' ; each loop, therefore, is composed of a radial and ulnar string. By employing the terms thumb, index, middle finger, ring finger, and little finger, and right and left, it is possible to designate any one of the twenty strings that may extend between two hands.

A string lying across the front of the hand is a palmar string, and one lying on the back of the hand is a dorsal string.

Sometimes there are two loops on a digit, one of which is nearer to the finger-tip than the other. Anatomically that which is nearer to the point of attachment is ' proximal ', that which is nearer the free end is ' distal '. Thus of two loops on a digit that which is nearer the hand is the proximal loop, and that which is nearer the tip of the digit is the distal loop. Similarly, we can speak of a proximal string and a distal string.

In all cases various parts of the string figure are transferred from one digit or set of digits to another or others. This is done by inserting a digit (or digits) into certain loops of the figure, and then restoring the digit (or digits) back to the original position, so as to bring with it (or

[1] W. H. R. Rivers and A. C. Haddon : ' A Method of Recording String Figures and Tricks ' (*Man*. October 1902, 109, p. 146).

them) one string or both strings of the loop. In rare cases a string is taken up between two digits. A digit may be inserted into a loop from the proximal or distal side, and in passing to a given loop may pass to the proximal or distal side of other loops. These expressions are used as a general rule instead of ' over and under ', ' above and below ', because the applicability of the latter terms depend on the way in which the figures are held. If the figures are held horizontally, ' over ' or ' above ' will correspond as a general rule to the distal side, while ' under ' or ' below ' will correspond to the proximal side. In some cases, where there is no possibility of confusion, the simpler terminology is used.

A given string may be taken up by a digit so that it lies on the front or palmar aspect of the finger, or so that it lies on the back or dorsal aspect. In nearly all cases it will be found that when a string is taken up by inserting a digit into the distal side of a loop the string will have been taken up by the palmar aspect of the digit, and that the insertion into the proximal side of the loop involves taking up the string by the dorsal aspect of the digit.

Other operations involved are those of transferring strings from one digit to another, and dropping the string from a given digit or digits.

The manipulation consists of a series of movements, after each of which the figure should be extended by drawing the hands apart and separating the digits. In some cases in which this would interfere with the formation of the figure, a special instruction will be given that the figure is not to be extended. Usually it is advisable to retain the loops as near the tips of the digits as possible, and to keep the strings as loose as you can until the completion of the figure.

There are certain opening positions and movements which are common to many figures. To save trouble these may receive conventional names, the use of which will soon be apparent.

Position 1.—This name may be applied to the position in which the string is placed on the hands when beginning the majority of the figures.

Place the string over the thumbs and little fingers of both hands, so that on each hand the string passes round the back of the little finger ; then between the little and ring fingers and across the palm ; then between the index finger and thumb, and round the back of the thumb to the radial side of the hand.

When the hands are drawn apart the result is a single radial thumb string and a single ulnar little finger string on each hand, with a string lying across the palm.

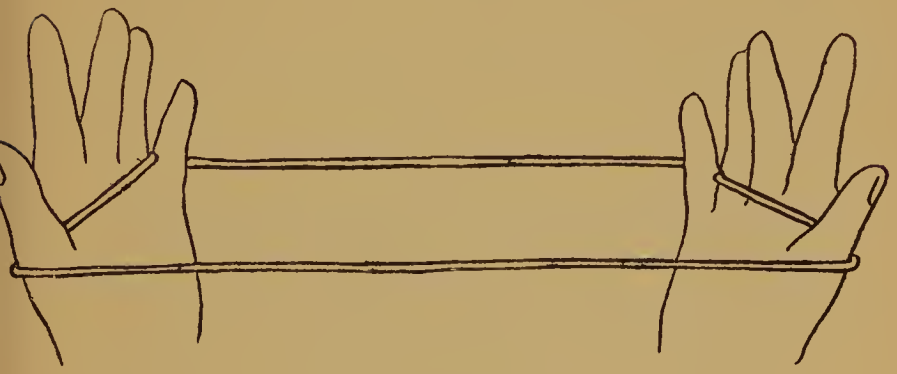

FIG. 1.—POSITION 1

Opening A.—This name may be applied to the manipulation which forms the most frequent starting-point of various figures. Place the strings on the hand in *Position* 1. With the backs of the index of the right hand take up from the proximal side (or from below) the left palmar string and return. There will now be a loop on the right index formed by strings passing from the radial side of the little finger and the ulnar side of the thumb of the left hand, i.e. the radial little finger and ulnar thumb strings respectively.

With the back of the index of the left hand take up

from the proximal side (or from below) the right palmar string and return, keeping the index within the right index loop all the time, so that the strings now joining the loop on the left index lie within the right index loop.

The figure now consists of six loops—on the thumb, index and little finger of each hand.

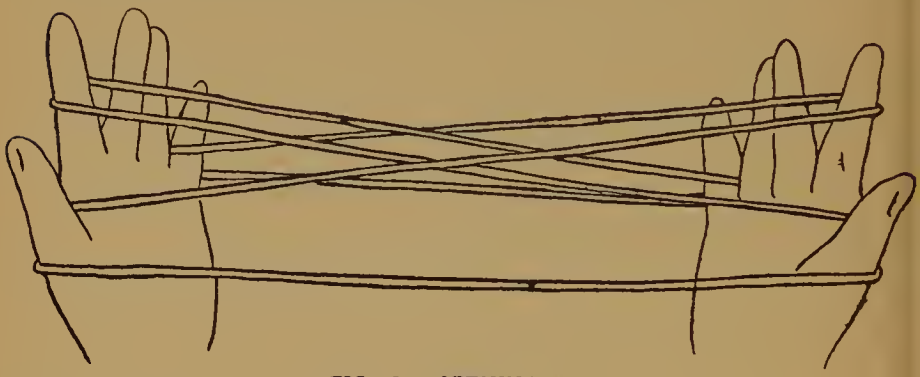

FIG. 2.—OPENING A

To '*Navaho*'.—When there are two loops on a digit, a distal and a proximal, to '*navaho*' is to lift the proximal loop over the distal one and over the tip of the digit on to its palmar aspect.

'*Pindiki*' is a native name for the final extension of many of the figures. It consists of passing the index fingers proximal to the ulnar thumb string and bringing them up through the thumb loop, so that this string makes a half turn around their tips, at the same time keeping the thumbs closely pressed against the index fingers to hold the ulnar string firm. Then extend the figure by turning the palms of the hands away from you.

You are sometimes required to twist a loop. This may be done 'clockwise'—that is, in the direction in which the hands of a clock travel; or in the opposite way, which is termed 'counter clockwise'.

In some finished figures, if the strings are pulled apart carelessly, a hopeless tangle results. To avoid this, in a

symmetrical figure take the top and bottom straight strings in the centres and pull them apart, and the figure will usually resolve itself into a simple loop.

The string selected should be smooth and pliable, and one not liable to kink. Macramé thread, or a fine woven cord, like blind cord worn supple, will be found to be suitable. A length of about 6 ft. 6 in. (2 metres) is usually the most convenient. The ends should be tied in a reef knot, sewn together with cotton, or, best of all, spliced.

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